

Exhibit C

Insurers' Opposition to Arrow's Renewed Motion for Partial Summary Judgment

Exhibit 106

(CORRECTED)



Expert Report of Adam H. Love, Ph.D.

United States District Court
Central District of California

Prepared for:

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February 4, 2020

Arrow Electronics, Inc.

v.

Aetna Casualty & Surety Co., et al.

Case No. 2:17-cv-05247-JFW-JEM

Adam H. Love, Ph.D.
Vice President/Principal Scientist

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Introduction

My name is Adam Hamilton Love and I am a Vice President and Principal Scientist at Roux Associates, Inc., located at 555 12th Street, Suite 1725, Oakland, California 94607. I have been retained as an expert by Hayes Scott Bonino Ellingson Guslani Simonson & Clause and Nicolaides Fink Thorpe Michaelides & Sullivan on behalf of Liberty Mutual Insurance Company and McCloskey, Waring, Waisman & Drury LLP of behalf of Travelers Casualty and Surety Company. I was asked to provide opinions with regard to the source and release characteristics of the trichloroethylene observed at the former Wyle Laboratories Facility located in Huntsville, Alabama (Site). I was also asked to provide opinions related to the type, reasonableness, and timing of costs related to the environmental work performed at the Site and the expected future costs for addressing remaining environmental impacts. In this report I present my qualifications, summarize background information regarding the matter, describe the methods employed in this analysis, and present my opinions and the bases for those opinions. I am compensated at a rate of \$335 per hour for this engagement. The documents upon which I relied in the preparation of this report are listed in the footnotes of this report.

The conclusions stated herein represent the application of my education, training, and experience within the disciplines of engineering, geology, hydrogeology, chemistry, fate and transport, and environmental forensics to the facts and conditions associated with the site involved with this litigation. The conclusions set forth in this report are based, in part, upon the facts, information, and data that have been provided to me by Counsel and/or which I obtained during the course of my investigation. To the extent that any of the underlying facts, information, or data change or are amended, I reserve the right to consider modifying my conclusions and opinions, if necessary and appropriate.

Qualifications

I hold a Bachelor of Arts degree in Geosciences from Franklin & Marshall College (1996), a Master of Science degree from University of California at Berkeley in Material Science and Mineral Engineering (1998), and a Doctor of Philosophy degree from University of California at Berkeley in Civil and Environmental Engineering (2002). I have over 20 years of experience in environmental forensics, site characterization, remediation, and contamination transport analyses.

From 1996 to 2002, I served as a graduate student researcher at University of California at Berkeley, where I participated in contaminant transport and environmental forensic evaluations, including the development of new techniques for environmental pollution reconstruction and allocation. From 2002 to 2009, I served as a scientist at the Forensic Science Center at Lawrence Livermore National Laboratory. My experience working at the Forensic Science Center included: 1) research and development projects – enhancing understanding of pollutant characteristics and development of technology for characterization, remediation, and source reconstruction/contribution analysis, and 2) operations projects – site applications of contaminant transport modeling and source reconstruction/contribution. From 2009 to 2013, I served as Principal Scientist at Johnson Wright, Inc., where I provided consultation services to various private companies and the federal government. I led Johnson Wright's Environmental Forensics practice, where I performed and oversaw corporate best practices for determination of source, timing, and allocation analyses at contaminated sites. Since 2013, I have served as Principal Scientist at Roux Associates, Inc., where I am currently the corporate Practice Area Leader for Litigation Services and continue to provide consultation services to various

companies, state and local municipalities, and federal agencies regarding site investigations, remediation, exposure assessment, and environmental forensics.

I have been involved in numerous projects across the United States involving the site assessment and remediation of trichloroethylene, other chlorinated solvents, and the degradation products of chlorinated solvents. I have performed site assessments of properties contaminated with chlorinated solvents and have determined the source and nature of release for trichloroethylene site contamination at numerous locations using various environmental forensic approaches. I have been involved as an expert at numerous contaminated sites with TCE contamination. Some recent cases involving TCE are: 1) Von Duprin LLC v. Moran Electric Service, Inc., Major Holdings, LLC, Major Tool and Machine, Inc., and Zimmer Paper Products Incorporated; 2) Chemtronics Inc. v. Northrop Grumman Systems Corp. American Arbitration Association Arbitration, 3) Siltronic Corporation v. Employers Insurance Company of Wausau, et al.; 4) Stanford v. Agilent; 4) Sunflower Redevelopment, LLC v. Illinois Union Insurance Company; 5) Lennar Mare Island, LLC v. Steadfast Insurance Company.

In addition, I am frequently utilized as an expert related to Federal EPA Superfund allocations or apportionment of environmental liabilities in the context of litigation at both large and small sites. I lecture throughout the country on the topics of 1) technical approaches to divisibility and apportionment of environmental harm, and 2) allocation of environmental liabilities. For example, in 2019, I was a co-presenter for a CLE accredited webinar entitled “Marshalling the Divisibility Defense to CERCLA Liability: Apportionment – Is the Harm Distinguishable?” and presented a CLE-accredited lecture on “Environmental Forensic Tools for Establishing Divisibility.” I also co-authored an article in the Journal of Remediation in December 2019 titled “Allocating cleanup costs among potentially responsible parties.”

In addition to this expert work, I have provided broader environmental consulting services at numerous locations across the country, some locations where TCE and/or PCB releases have occurred. In this capacity, I have performed site assessments, reviewed and provided technical comments on the work of other consultants, determined the source, timing and transport of releases, evaluated site conditions in comparison to clean-up requirements, achieved regulatory closure through a “No Further Action” designation, and evaluated the standards of practice in the industry.

Testifying Appearances

My expert testifying appearances within the last 4 years are listed below.

- Goldberg v. Goss-Jewett Company, Inc., et al., United States District Court, Central District of California. Case No. EDCV14-01872 DSF (AFMx). Deposition May 25, 2016; September 26, 2019. Expert Report. Rebuttal Report. Additional Rebuttal Report.
- Von Duprin LLC v. Moran Electric Service, Inc. Major Holdings, LLC, Major Tool and Machine, Inc., and Zimmer Paper Products Incorporated. United States District Court, Southern District of Indiana, Indianapolis Division. Case No. 1:16-CV-01942-TWP-DML. Deposition June 7, 2018. Trial July 31, 2019. Expert Report.
- King County, Washington v. Travelers Indemnity Co., et al. United States District Court, Western District of Washington. Case No. 14-cv-1957. Deposition April 9, 2019. Rebuttal Report.

- Chemtronics Inc. v. Northrop Grumman Systems Corp. American Arbitration Association Arbitration Case No. 01-17-0007-1884. Arbitration Testimony November 12-13, 2018. Expert Report. Rebuttal Report. Supplemental Report.
- Estate of Robert Renzel, Deceased et al. v. estate of Lupe Ventura, Deceased, et al. United States District Court, Northern District of California. Case No. 4:15-cv-1648-HSG. Deposition August 27, 2018. Expert Declaration. Expert Report. Rebuttal Report.
- Power Authority of the State of New York v. The tug M/V Ellen S. Bouchard, et al. United States District Court, Southern District of New York. Case No. 14-cv-4462 (PAC). Deposition May 30, 2018. Expert Report.
- Siltronic Corporation v. Employers Insurance Company of Wausau et al. United States District Court, Central District of Oregon. Case No. 3:11-cv-01493-BR. Deposition May 24, 2018. Expert Report.
- Crown Central, LLC v. Petroleum Marketing Investment Group, LLC, et al. Circuit Court for Baltimore County, Maryland. Case No. 03-C-16-010774 CN. Deposition December 19, 2017. Expert Declaration. Rebuttal Declaration.
- Sunflower Redevelopment, LLC v. Illinois Union Insurance Company. United States District Court, Western District of Missouri, Western Division. Case No. 4:15-cv-00577-DGK. Deposition November 10, 2017. Rebuttal Report. Supplemental Report.
- Insurance Company of the State of Pennsylvania v. County of San Bernardino. United States District Court, Central District of California. Case No. 5:16-cv-00128-PSG-SS. Deposition June 15, 2017. Expert Report. Rebuttal Report.
- Lennar Mare Island, LLC v. Steadfast Insurance Company. United States District Court, Eastern District of California, Sacramento Division. Case No. 2:12-cv-02182-KJM-KJN. Case No. 2:16-cv-00291-KJM-CKD860. Deposition May 26, 2017. Expert Report. Supplemental Report.
- 860 Kaiser, LLC v. Greene's Cleaners, Inc., Napa County Superior Court. Case No: 26-63995. Deposition January 11, 2016, September 12, 2016. September 26, 2016. Expert Declaration.
- Lewis v. Russell, United States District Court, Eastern District of California. Case No. CIV. S-03-02646 WBS AC. Deposition July 20, 2016. Expert Report. Rebuttal Report. Supplemental Report.

Please also refer to my resume, which is attached as Exhibit A.

Background

Site Description

The former Wyle Laboratories Facility (the Site) is located at 7800 Highway 20 West¹ in Huntsville, Madison County, Alabama (Figure 1). The Site occupies approximately 125 acres of industrial and undeveloped land immediately to the north of State Highway 20 and Interstate 565 and is bounded to its north by a Southern Pacific Railroad line. Near the Site land use includes residential land to the north, northeast and south, commercial land to southeast and northwest along the State Highway 20/Interstate 565 corridor and undeveloped woodland to the south and southwest. The Site is situated at approximately 650 feet above mean sea level (msl) and straddles an east/west trending drainage divide between two southward-flowing drainages.² The area of the Site subject to the environmental investigations described herein is primarily located north of this divide in the southwestern portion of the Site (Study Area). This area is currently occupied by several buildings, including Buildings 2, 4 and 5, the Seismic Test lab, the High Bay, the Dynamic Testing building and the SRV Testing building (Figure 2). The subject area also includes portions of the onsite drainage known as Turtle Creek, which flows southward towards the Tennessee River and the area east of Turtle Creek.

Site History

Wyle Laboratories Inc. (Wyle Laboratories) acquired the Site by 1961³ and the former Wyle Laboratories Facility began operation in 1962.^{4,5} The Site was vacant as of 1958⁶ and none of the documents produced indicate that there were previous operations at the Site prior to 1962. The Site is currently owned by National Technical Systems, Inc. (NTS), and NTS is also the current operator of the Facility.⁷

Wyle Laboratories offered engineering and testing-services,⁸ including specialized equipment cleaning operations to support the Saturn V program at the Marshall Space Flight Center (MSFC). Construction of buildings at the Site began in 1962 when the Wyle Laboratories Facility was first developed. Most of the buildings at the Site were built between 1962 and 1978.⁹ The Seismic Test Lab, Building 2 and the northeastern portion of Building 4 were built by 1965.^{10,11,12} The High Bay and remainder of Building 4 were

¹ Also known as 7800 Governors Drive West

² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 143).

³ Wyle Laboratories, 1961. Progress Report. October 10. (AR_HUNT00020181 at182)

⁴ Wyle Laboratories, 1961. Contract to Putman for First Wyle Huntsville Building, News Release No. L-185, December 19. (AR_HUNT00020179 at180)

⁵ Wyle Laboratories, 1962. Wyle Laboratories to Expand Huntsville Test Facility. News Release No. L-225. October 11. (AR_HUNT00020176)

⁶ Aerial photograph, May 30 1958 (AR_HUNT00021760)

⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 114).

⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 114).

⁹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 114).

¹⁰ Aerial photograph, 1965. (AR_HUNT00021779)

¹¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at187).

¹² Kennedy/Jenks Consultants, 2018. Historical Development of Wyle Laboratories, February. (AR_HUNT00021854).

constructed in 1966,^{13,14} and the SRV Testing building and Dynamics Testing building were constructed in 1978 and 1981, respectively.¹⁵ Prior to the development and channelization of Turtle Creek in the late 1970s,¹⁶ the portion of the Site currently occupied by the SRV building, the northern portion of the Dynamics Test building, and adjacent areas was a poorly drained area reportedly referred to by employees as "the swamp."¹⁷ Prior to the construction of Turtle Creek, surface water runoff north of the onsite drainage divide drained northward into this area.¹⁸

Environmental assessments at the Site began in 1994. Between 1994 and 1999, four due diligence environmental investigations were conducted at the Site.¹⁹ In 1999, evidence of a trichloroethylene (TCE) release was first discovered during two Phase II ESAs conducted on behalf of Wyle Laboratories.²⁰ Elevated concentrations of TCE and other volatile organic compounds (VOCs) associated with TCE degradation, including 1,1-dichloroethylene (1,1-DCE), cis-1,2-dichloroethylene (cis-1,2-DCE) and vinyl chloride, were detected in soil and grab groundwater samples collected from bore holes located northeast of the Dynamics Test Building.²¹

On August 2, 2000, as part of the evaluation related to the nature and extent of the detected VOCs, consultants on behalf of Wyle Laboratories interviewed several Wyle Laboratories employees - including Mr. Keith Wilson, the general manager, and Mr. John Todd, a 35-year employee of Wyle Laboratories Huntsville.²² During this interview, Mr. Todd and Mr. Wilson described historical cleaning and degreasing operations using TCE that took place at the Site between approximately 1964 or 1965 and 1971.²³ Based on a recounting of the interview no other operational TCE use was identified by the Wyle Laboratories employees.²⁴ Aerial photographs on display at the Huntsville Wyle Laboratories office provided additional information regarding historical operations and Wyle Laboratories. According to the Site Characterization Report produced by Kennedy/Jenks in 2016, examination of these photographs combined with the

¹³ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 152).

¹⁴ Aerial photograph, 1966 (AR_HUNT00021780)

¹⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 151).

¹⁶ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 144).

¹⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 144).

¹⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 143).

¹⁹ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 664).

²⁰ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 666-668).

²¹ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 666-668, 688).

²² Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 668).

²³ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 662, 668).

²⁴ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 668-669).

information obtained during the employee interviews serve as the primary basis for their understanding the nature of historical TCE use and release at the Site.²⁵

Site Geology and Hydrogeology

The Site is located in southwestern Madison County, Alabama, within the Tennessee-Elk River subregion of the Tennessee River hydrologic region.²⁶ The area's major drainages include the Indian and Bradford Creeks, which ultimately feed the Tennessee River.²⁷ The drainage divide between these two creeks runs through the southwestern portion of the Site. The majority of the Site (116.5 acres) sits north of this divide, where local runoff flows to the north ultimately entering Indian Creek via a network of unnamed drainages. Local runoff on the remainder of the site (8.5 acres) flows southwestward into drainages that connect with Bradford Creek.²⁸

The Site occupies a location in the Highland Rim physiographic province of northern Alabama. This region is characterized by an upfold of Paleozoic limestone, chert and shale that dip gently southward. The Site lies within a karst region of limestone bedrock (containing solutionally enlarged fractures and numerous sinkholes and caves). These geologic features are overlain by a layer of unconsolidated rocky material (regolith) made up of decomposed limestone bedrock.^{29,30} Regionally, groundwater is present in both the unconsolidated rocky material and the bedrock fractures, with infiltration of rainfall and surface water runoff through the unconsolidated rocky material recharging the bedrock aquifers that supply water to all of the large-capacity municipal and industrial supply wells in the Huntsville area. The regional groundwater flows generally to the south and is the same direction as regional surface water flow.³¹

The current understanding of Site geology and hydrogeology has been developed through numerous environmental investigations carried out at the Site between 2000 and 2019. These investigations have included installation of 5 bedrock wells (MW-24; MW-27A; MW-27B; MW-31; MW-32), 17 regolith/bedrock interface (RBI) wells (MW-11RB – MW-16RB; MW-20C; MW-21D; MW-22C; MW-25C,D; MW-26D; MW-28C,D; MW-29C,D; MW-30c) and 39 wells screened at various depths within the regolith (MW-1 – MW-8; MW-10; MW-17A,B,C; MW-18A,B; MW-19A,B,C,D; MW-20A,B; MW-21A,B,C; MW-21C; MW-22A,B; MW-23A,B,C; MW-25A,B; MW-26A,B,C; MW-28A,B; MW-29A,B; MW-30A,B).^{32,33} Additionally, 10 wells screened at various depths in the regolith (BT-1c, BT-1d, BT-2c, BT-2d, BT-3b, BT-3c, BT-3d, DR-1c, DR-2c, IW-1c)

²⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 147-148, 152).

²⁶ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 116).

²⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 143).

²⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 143-144).

²⁹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 143).

³⁰ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 663).

³¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 143).

³² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 260-267).

³³ Kennedy/Jenks Consultants 2017. Well Installation and First Semiannual 2017 Groundwater Monitoring Report, Former Wyle Laboratories Facility, Huntsville, Alabama December 19. (AR_HUNT00019463 at 497).

were installed in advance of a proposed remediation pilot test.³⁴ The environmental investigations have also involved seismic surveys to map structural features of regolith and underlying bedrock.³⁵

The Site is underlain by 60 to 125 feet of regolith that covers approximately 69 to 100 feet of Fort Payne Chert bedrock over a thin layer of Chattanooga Shale at approximately 185 feet below ground surface (ft bgs). The regolith generally consists of gravelly, sandy, and/or silty clays with the occasional predominance of other grain sizes.³⁶ The regolith is thought to have formed in place as, over time, water transported the soluble fraction of the bedrock away leaving behind the residual insoluble clay, sand and gravel-sized fragments of the chert.³⁷ A thin transitional zone is documented immediately above and below the contact between the regolith and the bedrock, referred to as the regolith/bedrock interface (RBI).³⁸ A northwest/southeast trending bedrock trough has been mapped running through the Site with the deepest portion under the northern portion of the Dynamic Testing building and the eastern portion of the SRV testing building.³⁹ The regolith lithology is complex and no laterally extensive soil stratigraphic units have been mapped. However, the following five regolith water-bearing units have been identified based on spatial and temporal assessment of groundwater elevations. These zones are depicted in the cross section displayed in Figure 3 and summarized below:

- Upper shallow regolith (Zone 1): Zone 1 consists primarily of silty and sandy clays and is documented to be 20 to 35 feet thick at the Site. Perched groundwater is present at depths less than 10 feet below ground surface (ft bgs), with groundwater elevations similar to Turtle Creek.⁴⁰ The groundwater flow direction in Zone 1 is north and north-northeast,⁴¹ following surface topography. Zone 1 remains saturated throughout the year.⁴²
- Lower shallow regolith (Zone 2): Zone 2 consists primarily of sandy and gravelly clays with a thickness of 13 to 20 feet at the Site, thickening to 30 feet in the eastern portion of the Site. Groundwater is perched in Zone 2 and found at depths of 15 to 20 ft bgs (generally 5 to 10 feet below those in Zone 1). The groundwater flow direction in Zone 2 is generally northeast but exhibits a north-northeast trending mound. Zone 2 remains saturated throughout the year.⁴³

³⁴ Kennedy/Jenks Consultants, 2019. Letter to ADEM Re: Amendment to Pilot Injection Plan, Former Wyle Laboratories Facility, Huntsville, Alabama. July 8. (AR_HUNT00025291).

³⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 122).

³⁶ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 155).

³⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 164).

³⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 164).

³⁹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 156, 194).

⁴⁰ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 155, 157).

⁴¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 128).

⁴² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 169).

⁴³ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 169).

- Middle regolith (Zone 3): Zone 3 consists of gravelly and sandy clay and sand with silt and gravel and is 12 to 18 feet thick. Groundwater in Zone 3 is unconfined⁴⁴ and found at depths of 45 to 60 ft bgs.⁴⁵ The groundwater flow direction in Zone 3 is complex and varies between seasons, with flows towards the northwest east and northeast during the summer and fall and west and southwest during the winter and spring. Flow conditions in Zone 3 fluctuate seasonally between unsaturated, partially saturated and fully saturated.⁴⁶
- Deep regolith (Zone 4): Zone 4 consists of silts interbedded with sandy and silty clays. The thickness of Zone 4 varies between 15 feet on the eastern and western edges of the Site to 50 feet along the bedrock trough.⁴⁷ Groundwater is confined in Zone 4 and is generally encountered 7 to 9 feet below those in Zone 3.⁴⁸ Groundwater flow direction in Zone 4 are generally west to west-southwest.⁴⁹ Zone 4 is saturated throughout the year.⁵⁰
- Regolith-bedrock transition (Zone 5): Zone 5 consists of the zone immediately above and below RBI. Zone 5 consists of chert gravel with clay, silt and sand over the Fort Payne Chert. Depths to groundwater in Zone 5 are typically 2 to 3 feet below those in Zone 4 but exhibit broad seasonal range that overlaps that of Zones 3 and 4.⁵¹ The boundary between Zones 4 and 5 is not well defined.⁵² The groundwater flow direction in Zone 4 is generally to the southwest⁵³ Zone 5 is saturated throughout the year.⁵⁴

Groundwater elevations in the regolith fluctuate seasonally to varying degrees, with greater fluctuations in Zones 4 and 5 (20 to 30 ft)⁵⁵ that dampen closer to the surface (5 to 16 ft in Zones 1 and 2).⁵⁶ Generally,

⁴⁴ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 155).

⁴⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 158).

⁴⁶ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 169).

⁴⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 159).

⁴⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 159).

⁴⁹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 129).

⁵⁰ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 169).

⁵¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 159).

⁵² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 159).

⁵³ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 160, 206).

⁵⁴ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 169).

⁵⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 159).

⁵⁶ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 157-158).

water levels begin to rise in December, peak between February and April, and then drop steadily reaching a seasonal minimum in the late fall or early winter.⁵⁷

Local rain water recharges Zones 1 and 2 through infiltration from ground surface through the shallow regolith. The infiltrating rain water cascades downward through TCE-impacted soil and groundwater, following preferential flow paths of higher permeability (greater sand and gravel content) and migrating laterally over more fine-grained clay units. Seasonal fluctuations in hydraulic head in the confined Zones 4 and 5 influence water levels in Zone 3, causing them to rise and fall with seasonal cycles. These fluctuations cause Zone 3 groundwater to periodically come in contact with clay-rich units (where present) impacted by TCE and mix with TCE-impacted groundwater that migrated down from Zones 1 and 2. When water levels decline during the dry season, Zone 3 groundwater moves downward, leaving unsaturated conditions in the upper portion of Zone 3 and allowing dissolved-phase TCE to enter Zones 4 and 5.

The bedrock aquifer is considered the sixth water-bearing unit (Zone 6). Groundwater in Zone 6 is generally encountered 4 to 5 feet below that in Zone 5.⁵⁸ Bedrock drilling at the Site has revealed horizontal bedding planes and vertical fractures in the boreholes, although these features do not show evidence of widening by solution processes. Solution-enhanced features such as cavities have not been documented in the five bedrock wells advanced at the Site.⁵⁹

⁵⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 161).

⁵⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 162).

⁵⁹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 163).

Timeline of Regulatory Interactions

The Site has been the focus of nearly two decades of environmental investigation, performed by Kennedy/Jenks Consultants (Kennedy/Jenks), to characterize the extent and magnitude of the impacts stemming from the historical TCE release. This investigation consisted of routine groundwater monitoring and multiple rounds of Site characterization as requested by the Alabama Department of Environmental Management (ADEM). A timeline of regulatory interactions regarding Site characterization is as follows:

- August 3, 2000: Kennedy/Jenks and Wyle Laboratories representatives meet with the ADEM with the purpose of informing ADEM of the evidence of a historical TCE release at the Site and determining a path forward for further environmental activities at the Site.⁶⁰ According to Kennedy/Jenks, ADEM concludes that the Alabama State Groundwater Program under the Alabama Pollution Control Act was the appropriate program to handle Site activities related to the historical TCE release⁶¹ and Wyle Laboratories subsequently enters ADEM's voluntary cleanup program.⁶² Based on the meeting outcome, Kennedy/Jenks proceeds with the proposed soil and groundwater investigations without being required to get formal work plan approval from ADEM.⁶³
- October 2000 – February 2001: Kennedy/Jenks submits the Characterization Work Plan to ADEM in October 2000.⁶⁴ This work plan states that, “the proposed characterization program is a voluntary action taken by Wyle. ADEM will be kept apprised of the developments in the project as the work plan is implemented.”⁶⁵ In January 2001, ADEM approves the Characterization Work Plan and issues a groundwater incident letter to Wyle Laboratories assigning the Site Groundwater Incident No. GW 01-01-03.⁶⁶ ADEM requests supplemental information regarding the numbers and locations of soil borings and monitoring wells.⁶⁷ In February 2001, Kennedy/Jenks informs ADEM that Wyle Electronics was purchased by Arrow Electronics, Inc. and, as the successor to Wyle Electronics, is assuming the characterization program at the Wyle Laboratories Facility.⁶⁸
- February 2002 – April 2002: Kennedy/Jenks submits the Geophysical Investigation Report and Characterization Work Plan Supplement in February 2002. This report provides supplemental

⁶⁰ Kennedy/Jenks Consultants, 2000. Report of a Historic Release, Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama, K/J 004029.00. September 21. (AR_HUNT00009978).

⁶¹ Kennedy/Jenks Consultants, 2000. Report of a Historic Release, Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama, K/J 004029.00. September 21. (AR_HUNT00009978 at 979).

⁶² Kennedy/Jenks Consultants, 2008. Site Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. May 5. (AR_HUNT00000261 at 266).⁶³

⁶³ Kennedy/Jenks Consultants, 2000. Report of a Historic Release, Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama, K/J 004029.00. September 21. (AR_HUNT00009978 at 979).

⁶⁴ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656).

⁶⁵ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 662).

⁶⁶ ADEM, 2015. Consent Order No. 15-033-CGW. February 9. (AR_HUNT00010050 at 52)

⁶⁷ Kennedy/Jenks Consultants 2001. Bimonthly Progress Report – Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama. February 26. (AR_HUNT00000026).

⁶⁸ Kennedy/Jenks Consultants 2001. Bimonthly Progress Report – Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama. February 26. (AR_HUNT00000026).

information requested by ADEM in January 2001.⁶⁹ In April 2002, ADEM approves the proposed work.⁷⁰

- February 2003 – August 2003: Kennedy/Jenks submits the Soil and Groundwater Investigation Report documenting investigation activities at the Site through 2002. The report's recommendations include delineation of the horizontal and vertical extent of VOC contamination in soil and groundwater.⁷¹ Upon review of the February 2003 Soil and Groundwater Investigation Report, ADEM concurs with the recommendation for delineation of contamination and requests that specific activities be included in a forthcoming work plan including characterization of the bedrock surface beneath the Site and surface water sampling in Turtle Creek.⁷²
- October 2003 – March 2004: Kennedy/Jenks submits the Work Plan for Continued Soil and Groundwater Characterization. ADEM requests revisions in January 2004.⁷³ Kennedy/Jenks submits the revised work plan in March 2004⁷⁴ and ADEM approves the revised work plan later that month.⁷⁵
- October 2004: Based on detections of TCE in a public supply well approximately one mile downgradient of the Site, ADEM concludes that there is a connection between the VOCs beneath the Site and the underlying groundwater aquifer. ADEM informs Arrow Electronics that "it is imperative that all assessment activities to establish the horizontal and vertical extent of the contamination in the underlying aquifer system as quickly possible [sic]," and should elevated concentrations of chlorinated hydrocarbons be present at RBI beneath the Site, "all necessary assessment activities to establish vertical extent of contamination in the underlying bedrock should be conducted without obtaining prior approval from [ADEM]."⁷⁶
- January 2006: Upon review of a semiannual groundwater monitoring report for the Site, ADEM requests additional activities be carried out as part of further characterization efforts at the Site. These additional activities include installation of at least one bedrock groundwater monitoring well and the abandonment of groundwater monitoring well MW-9.⁷⁷

⁶⁹ Kennedy/Jenks Consultants, 2002. Geophysical Investigation Report and Characterization Work Plan Supplement, Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama. February 11.

⁷⁰ ADEM, 2002. Groundwater Incident GW 01-01-3, Wyle Laboratories Facility, Huntsville, Alabama. April 5. (AR_HUNT00010000).

⁷¹ Kennedy/Jenks Consultants 2003. Soil and Groundwater Investigation Report – 2002, Wyle Laboratories Facility, Huntsville, Alabama. February 25. (AR_HUNT00000047 at77).

⁷² ADEM, 2003. Former Wyle Laboratories Facility, Soil and Groundwater Investigation Report – 2002, Huntsville, Madison County, Alabama, Groundwater Incident No. GW 01-01-03. August 14, p. 2 (NO BATES).

⁷³ ADEM, 2004. Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident No. GW 01-01-03. January 15. (AR_HUNT00002625)

⁷⁴ Kennedy/Jenks Consultants, 2004. Revised Work Plan for Continued Soil and Groundwater Characterization, Wyle Laboratories Facility, Huntsville, Alabama, March 4. (AR_HUNT00016271)

⁷⁵ ADEM, 2004. Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident No. GW 01-01-03. March 12. (AR_HUNT00002627).

⁷⁶ ADEM, 2004. Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident No. GW 01-01-03. October 13. (AR_HUNT00002628)

⁷⁷ ADEM, 2006. Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident No. GW 01-01-03. January 18. (AR_HUNT00010021)

- February 2006: Kennedy Jenks submits the 2004-2005 Site Characterization Report.⁷⁸ Following receipt of this report ADEM requested a work plan for additional investigation be submitted.⁷⁹
- January 2007 - June 2007: Following an additional request for the work plan in January 2007⁸⁰, ADEM issues a notice of violation (NOV) to the Site in a letter dated June 26, 2007. This letter states that an investigation is required at the Site and a corresponding investigation work plan must be submitted.⁸¹
- May 2008: Kennedy/Jenks submits the Site Characterization Work Plan to ADEM. The work plan is approved by ADEM later that month.
- 2009: Kennedy/Jenks meets with ADEM and presents investigation findings through 2009.⁸² Based on these findings, ADEM determined that an additional workplan was necessary to further characterize the extent of the contamination.⁸³
- April 2010 – May 2010: Kennedy/Jenks submits the Site Characterization and Routine Groundwater Monitoring work plan,⁸⁴ which is approved by ADEM in May 2010.⁸⁵
- February 2013: Kennedy/Jenks presents an update of site characterization activities to ADEM. It was determined that completion of Site characterization was required by ADEM.^{86,87}
- February 9, 2015: Arrow Electronics and ADEM enter into a Consent Order (Order No. 15-033-CGW) requiring Arrow Electronics to address environmental conditions at the Site.⁸⁸
- June 2016: Kennedy/Jenks submits the Site Characterization Report 2008-2015. This report concludes that characterization of the Site is complete and that remaining data gaps will be addressed by remedial investigations⁸⁹ intended to “provide data necessary to screen and select potential remedial alternatives.”⁹⁰

⁷⁸ Kennedy/Jenks Consultants 2006. 2004 – 2005 Site Characterization Report, Wyle Laboratories Facility, Huntsville, Alabama. February 2. (AR_HUNT00006060).

⁷⁹ ADEM, 2015. Consent Order No. 15-033-CGW. February 9. (AR_HUNT00010050 at 52)

⁸⁰ ADEM, 2007. Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident o. GW 01-01-03. January 25. (AR_HUNT00010033)

⁸¹ ADEM, 2007. Notice of Violation, Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident o. GW 01-01-03. June 26. (AR_HUNT00002636)

⁸² Kennedy/Jenks Consultants, 2009. Wyle Huntsville, An Environmental Overview through 2009. (AR_HUNT00002642)

⁸³ ADEM, 2015. Consent Order No. 15-033-CGW. February 9. (AR_HUNT00010050 at 53)

⁸⁴ Kennedy/Jenks Consultants, 2010. 2010 Site Characterization and Routine Groundwater Monitoring Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. April 19. (AR_HUNT00008607)

⁸⁵ ADEM, 2015. Consent Order No. 15-033-CGW. February 9. (AR_HUNT00010050 at 53)

⁸⁶ Kennedy/Jenks Consultants, 2013. Wyle Laboratories – Huntsville, Progress through 2012, Meeting with ADEM. February 21.

⁸⁷ ADEM, 2015. Consent Order No. 15-033-CGW. February 9. (AR_HUNT00010050 at 53)

⁸⁸ ADEM, 2015. Consent Order No. 15-033-CGW. February 9. (AR_HUNT00010050 at 51)

⁸⁹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 174).

⁹⁰ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 175).

The site investigation concluded in June 2016 and remedial investigation activities began.

- May 2017, Kennedy/Jenks installed three new wells, two which were bedrock wells⁹¹ for the purposes of further characterizing the presence of VOCs in the subsurface and refining the hydrogeologic understanding of the Site for groundwater remedy evaluations.⁹²
- In 2017-2018, soil vapor was assessed to determine the potential vapor intrusion hazard in the vicinity of the buildings on-site.^{93,94,95} Thirteen of the 55 VOCs that were detected in the soil samples during the November 2017 sampling event were detected in one or more samples at concentrations that exceeded the vapor screening levels. Cancer risks and noncancer hazards were estimated for each chemical of potential concern (COPC) detected in soil vapor at the five building groups using the John-Ettinger model (JEM). JEM simulates the transport of soil vapor in the subsurface into indoor air and calculates an attenuation factor from soil vapor into indoor air using site-specific inputs. The cumulative cancer risk and noncancer index was calculated for each location. The cancer risks and non-cancer hazards were all below the ADEM target levels. The attenuation factors calculated for the second soil vapor sampling event were very low due to the high soil moisture content. Kennedy/Jenks concluded that vapor intrusion pathway does not appear to pose an unacceptable risk to workers at the Site.
- In May 2018, after reviewing Kennedy/Jenks' Soil Vapor Investigation Second Report, ADEM concurred that the vapor intrusion pathway does not appear to pose an unacceptable risk to workers at the Site and that a risk assessment should be conducted to establish risk-based cleanup levels for addressing impacted media at the Site.
- In 2018-2019, Kennedy/Jenks' performed a Risk Management Evaluation⁹⁶ to characterize the potential risks to human health and environment that may be posed by chemicals in the water, air, or soil at the Site. Kennedy/Jenks concluded that the risk from TCE in surface water was below the Tier II EcoTox threshold for the protection of wildlife. Kennedy/Jenks noted that the shallow groundwater is not a source of water for municipal water supply and no industrial or residential water supply wells are known to be completed in the shallow groundwater in the Site vicinity. Ultimately, Kennedy/Jenks' recommendation was that risk-based target cleanup levels did not need to be developed and that remedial action was not necessary to address risks to human health or ecological receptors on-site. Kennedy/Jenks also concluded that further evaluation of groundwater as a potential pathway for exposure of off-site human receptors is not necessary. Kennedy/Jenks did propose to reduce the mass of TCE present in the onsite regolith in a Corrective Action Development Plan.

⁹¹ Kennedy/Jenks Consultants, 2019. Second Semiannual 2018 Groundwater Monitoring Report - Former Wyle Laboratories, Huntsville, Alabama. January 21.

⁹² Kennedy/Jenks Consultants, 2017. Well Installation and First Semiannual 2017 Groundwater Monitoring Report, Former Wyle Laboratories, Huntsville, Alabama. December 19. (AR_HUNT00019463 at 470)

⁹³ Kennedy/Jenks Consultants, 2017. Soil Gas Investigation Work Plan and Vapor Intrusion Pathway Assessment - Former Wyle Laboratories Facility, Huntsville, Alabama. February 3.

⁹⁴ ADEM, 2017. Soil Gas Investigation Initial Report - Former Wyle Laboratories Facility, Huntsville, Alabama. September 1.

⁹⁵ Kennedy/Jenks Consultants, 2018. Soil Vapor Investigation Second Report - Former Wyle Laboratories Facility, Huntsville, Alabama. February 6.

⁹⁶ Kennedy/Jenks Consultants, 2019. Risk Management Evaluation - Former Wyle Laboratories Facility, Huntsville, Alabama. May 1.

- In July 2019, ADEM reviewed the Risk Management Evaluation for the Former Wyle Laboratories Facility.⁹⁷ Based on these results, ADEM concurred that soil and vapor intrusion exposure pathways do not appear to pose an unacceptable risk to workers at the site. To limit future/potential migration of COCs, ADEM concurs that shallow groundwater should be under corrective action to reduce the potential for impacts to bedrock groundwater. ADEM noted that the Uniform Environmental Covenants Program is requiring an environmental covenant on the site because impacted groundwater is not being remediated to residential standards.
- In 2019, a Corrective Action Development Plan⁹⁸ was submitted to select a remedy that will appropriately address chemicals of concern at the Site that present a potential risk to human health and the environment, including groundwater as a potential future resource on and off the Site. The use of groundwater as a future drinking water supply in and near the site was the basis for identifying actions potentially necessary to protect the future groundwater resource. Groundwater conditions at the site are complicated because of the variable thickness of clay-rich regolith and resulting multi-level groundwater flow system above bedrock. Implementation is complex due to the presence of buildings and active testing programs conducted over impacted areas by NTS, Inc. Kennedy/Jenks' remediation approach will generally consist of pilot testing the preferred technology, enhanced reductive dechlorination (ERD) – an in-situ groundwater remediation approach. Kennedy/Jenks' ERD pilot testing is currently ongoing.^{99,100} Kennedy/Jenks expects natural attenuation can address residual concentrations in the groundwater resource within a predictable timeframe.¹⁰¹

Opinion and Bases for Opinion

Opinion 1:

- **Between approximately 1964 and 1971, there were ongoing releases of TCE to soil and groundwater at the former Wyle Laboratories Facility that resulted in the currently observed contamination of TCE and its degradation products at the Site.**

According to employee-provided details documented by Kennedy/Jenks, liquid TCE was used on the Site for the purpose of cleaning liquid oxygen (LOX) tubing and fittings (collectively LOX piping)¹⁰² that took place between approximately 1964 or 65 and 1971¹⁰³ to support F-1 engine testing for the Saturn V rocket program

⁹⁷ ADEM. 2019. Risk Management Evaluation. Former Wyle Laboratories, Huntsville, Alabama. July 31.

⁹⁸ Kennedy/Jenks Consultants, 2019. Corrective Action Development Plan - Former Wyle Laboratories Facility, Huntsville, Alabama. February 1.

⁹⁹ Kennedy/Jenks Consultants, 2019. Amendment to Pilot Injection Plan - Former Wyle Laboratories Facility, Huntsville, Alabama. July 8.

¹⁰⁰ ADEM, 2019. Approval of Amendment to Pilot Injection Plan - Former Wyle Laboratories Facility, Huntsville, Alabama. July 12.

¹⁰¹ Kennedy/Jenks Consultants, 2019. Corrective Action Development Plan - Former Wyle Laboratories Facility, Huntsville, Alabama. February 1.

¹⁰² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 148).

¹⁰³ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 662).

at the MSFC.¹⁰⁴ The most frequent F-1 engine testing at the MSFC lasted from April 1965 through November 1966.¹⁰⁵ The last Saturn V rocket was launched in 1973.¹⁰⁶ Additionally, TCE drum storage existed on Site between 1962 and 1970.¹⁰⁷ The details of these on-Site operational activities associated with TCE use are described below.

The details of the LOX cleaning process are based on the August 2000 Wyle employee interviews conducted by Kennedy/Jenks and Environ,¹⁰⁸ Wyle employee witness statements collected by Peter Murphy in 2018,¹⁰⁹ and review by Kennedy/Jenks of oblique aerial photographs on display in the Huntsville office of Wyle Laboratories.¹¹⁰ TCE was delivered to the Site in 55-gallon drums, which were stored in an unpaved area in the location currently occupied by Building 5 and to the east of Building 1.¹¹¹ A review of the aerial photographs produced identified drums located in an alley to the east of Building 1 in 1964 and 1965. Drum storage locations could not be determined in other aerial photographs produced.

The LOX cleaning operations were conducted in and adjacent to Building 2 in the area currently occupied by the Seismic Test lab, Loss of Coolant testing area and a tool room. A floor drain located immediately northeast of the present-day seismic test equipment vault is thought to have been present during the period of LOX cleaning operations.¹¹² Oil, grease and hydrocarbons were removed from larger LOX piping by dipping the piping in long, open, above-ground troughs containing TCE.¹¹³ The piping was then removed from the troughs and carried by hand to an exterior location immediately north of Building 4 where it was hoisted on a T-bar, I-beam tower (referred to herein as the rinse tower) and hung vertically for inspection, spot cleaning with TCE, final rinsing with deionized water and drying. Dry piping was bagged in plastic and tagged as clean.¹¹⁴ Smaller LOX parts were cleaned in a vapor degreaser located at the northern portion of the present-day Seismic Test lab.¹¹⁵

- The LOX cleaning operations were located on and to the north of the onsite drainage divide. Liquid runoff from the tower area dripped to the unpaved ground surface and drained northward across an open, relatively steep, rip-rapped area currently occupied by the Dynamics Test building and collected in the poorly drained area currently occupied by the SRV and Dynamics Test buildings and

¹⁰⁴ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 115).

¹⁰⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 147).

¹⁰⁶ NASA, 2010. What Was the Saturn V? <https://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-was-the-saturn-v-58.html>, accessed February 21, 2018.

¹⁰⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 152).

¹⁰⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 147, 152).

¹⁰⁹ Expert Report of Peter Murphy. 2018. TCE Migration at Former Wyle Laboratories, Huntsville, Alabama. March 30. Appendix B: Former Wyle Laboratory Witness Statements

¹¹⁰ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 147, 152).

¹¹¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 147, 152).

¹¹² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 148).

¹¹³ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 148).

¹¹⁴ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 662, 668).

¹¹⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 115).

adjacent areas. This area was described by Mr. Todd as having been a "swamp,"¹¹⁶ and is referred to in the most recent Site Characterization Report as the "Former Bone Yard."¹¹⁷ A review of a topographic map from 1966 depicts a swampy area just south of the Southern Pacific Railroad tracks in the approximate location of the current SRV building and Turtle Creek.¹¹⁸

While no specific report of a TCE release at the Site has been documented, the historical LOX cleaning process described above would have reasonably been expected to result in routine releases of TCE through the following normal operations:

- Transfers of new pure-phase TCE within the drum storage area;
- Transfers of new/used pure-phase TCE in/out of the cleaning troughs, the vapor degreaser and drums;
- Drips of pure-phase TCE out of the troughs onto the concrete floor that then get washed with rinse water into the floor drains;
- Transfer of LOX piping from the troughs to the rinse tower;
- Spot clean LOX piping on the rinse tower;
- Runoff of dissolved-phase TCE from LOX piping rinsed with deionized water on the rinse tower; and,
- Leaks from the vapor degreaser

TCE released to the concrete floors in the LOX cleaning area would have reached the floor drain when washed with rinse water and could have been released beneath the building. TCE released from parts at the rinse tower would have run northward and downslope collecting in the poorly drained Former Bone Yard. Improvements to Turtle Creek were begun as early as January 1963 and the creek was improved to its current configuration when the northern portion of the Site was developed in the late 1970s.¹¹⁹ The surface water drainage system would have carried rinse water containing TCE, along with storm water, from the primary source areas through the three drainage systems:

- Until 1966 - eastward beneath the current Building 4 and the High Bay, and north down the storm drain along the main road to the poorly-drained area.
- After 1966 – northward through the 8-inch trunk line to the ditch that ran along the west side of the current Dynamics Test Building, to the manhole, then northwest to the outfall at Turtle Creek.¹²⁰

Once it reached the poorly-drained area, the water containing TCE likely spread out in the quiet waters and remained in place for an undetermined length of time before continuing downstream in the early Turtle Creek. The ponding and infiltration of TCE contamination in this area resulted in a downgradient location where TCE accumulated and continued to migrate to the soil and groundwater below.

The release mechanisms described above are consistent with the extent and magnitude of TCE and other VOCs in soil and groundwater at the Site. The highest TCE concentrations in soil are observed in three locations, 1) east of Building 5, 2) in the vicinity of the Dynamic Testing Building, and 3) beneath the Seismic

¹¹⁶ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656 at 662, 668).

¹¹⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 150).

¹¹⁸ Topographic map reviewed on www.historicaerials.com for the Site location

¹¹⁹ Kennedy/Jenks Consultants, 2018. Corrective Action Plan Former Wyle Laboratories, Huntsville, Alabama. November 20. Page 2-3.

¹²⁰ Kennedy/Jenks Consultants, 2018. Corrective Action Plan Former Wyle Laboratories, Huntsville, Alabama. November 20. Page 2-14.

Test Lab. The first location corresponds with the former drum storage area as identified by Kennedy/Jenks in historical aerial photographs, the second location corresponds to the location of the former LOX cleaning operation, and the third location corresponds to the poorly-drained area northeast and downslope of the former LOX cleaning operation and rinse tower (Former Bone Yard). The drum storage and LOX cleaning operation are the two identified locations of TCE operational use and release at the Site, while additional TCE-bearing water collected in and permeated through soils in the Former Bone Yard. Therefore, the presence of elevated concentrations of TCE in soils at these locations is also consistent with the sources and locations described above.

The highest concentrations of VOCs in soil are not at the surface (as would be expected if there were recent releases of TCE), but instead at depths of approximately 20 - 35 feet,¹²¹ consistent with the nearly 50 years that have elapsed since TCE was in use at this facility. For example, the highest TCE concentrations in soil east of Building 5 are at 34 feet,¹²² the highest TCE concentrations in the vicinity of the Dynamic Testing Building are at 25 feet, and the highest TCE concentrations beneath the Seismic Test Lab are at 20 feet.¹²³ During the time between operational TCE releases and the current observations, TCE that entered the subsurface, either in dissolved-phase in rinse water or as small drips of pure-phase product, would be expected to have percolated through the shallow regolith with infiltrating rainwater and then migrate laterally across less permeable layers. This migration would result in the TCE cascading down through clay-rich soils, with a portion of the VOCs diffusing into the clay layers. Over time, it is expected that shallow soil TCE concentrations declined as infiltrating rain water transported TCE in Zones 1 and 2 downwards into the deeper Zones.

As with soil, the locations of highest concentrations of TCE and other VOCs in groundwater are consistent with locations of known VOC impacts to groundwater described above. The network of groundwater monitoring wells at the Site cover different spatial extents for each water-bearing zone within the Study Area. Monitoring well coverage increases with depth, with monitoring well in Zone 5 present for most of the Study Area. The areas of known VOC impacts to groundwater and groundwater TCE concentrations (as of March 2015) are depicted in Figures 4a-e.

The areas of VOC-impacted groundwater observations are expected given the directions of groundwater flow in each zone, the time that has elapsed since cessation of the TCE operations, and the source locations within and adjacent to the current Seismic Test Lab and Building 4 (LOX cleaning) and immediately north and east of Building 5 (drum storage). The vertical and geographic (southwest to northeast) distribution of TCE in groundwater throughout Zones 1-6 is shown on the cross section in Figure 3.

Overall, TCE concentrations in groundwater beneath the Site range multiple orders of magnitude, from less than 5 micrograms per liter ($\mu\text{g/l}$) in MW-25 located south of the High Bay to over 100,000 $\mu\text{g/l}$ at MW-4 immediately to the northeast of the Dynamics Test Building at the location of the Former Bone Yard. The highest TCE concentrations in groundwater are found in Zone 3 (Middle Regolith). The extent of known VOC-impacted groundwater in Zone 3 is north of the High Bay, Building 4, Seismic Test Lab, Environmental Test Lab complex, stretching from the Accounting building to the west to the eastern portion of Turtle Creek to the east, with the highest concentrations located in the vicinity of the Former Bone Yard and north of the LOX-cleaning rinse tower. Again, these locations are consistent with the source areas described above, and

¹²¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 252-258).

¹²² Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 254).

¹²³ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 257).

presence of the highest TCE concentrations in Zone 3 is expected given the decades that have elapsed since the TCE was released, allow for its downward migration through Zones 1 and 2.

TCE has been detected at the RBI at concentrations as high as 14,000 µg/l, at one of the most downgradient locations at which groundwater is sampled at the RBI, and near the former drum storage area. This location is also where TCE-impacted water would migrate over the decades since TCE was last released. TCE has also been detected in bedrock at concentrations as high as 69 µg/l at the southwestern portion of the Study Area. The presence of TCE at the RBI and in bedrock indicates that TCE has had the opportunity overtime to both diffuse into fine-grained soils beneath the Site and migrate downward and enter the bedrock where it can travel along fractures and bedding planes. Diffusion of TCE into the fine-grained soils and bedrock fractures create a persistent localized source of TCE to the surrounding groundwater.

Opinion 2:

- **The only documented releases of TCE from the former Wyle Laboratories Facility were from ongoing operational releases between approximately 1964 and 1971.**

The nature of the historic releases at the Wyle Laboratories Facility were from ongoing operational releases related to TCE storage, transfer and use between 1964 and 1971. The historical LOX cleaning process described in Opinion 1 would have reasonably been expected to result in routine releases of TCE through normal operations:

- Transfers of new pure-phase TCE within the drum storage area;
- Transfers of new/used pure-phase TCE in/out of the cleaning troughs, the vapor degreaser and drums;
- Drips of pure-phase TCE out of the troughs onto the concrete floor that then get washed with rinse water into the floor drains;
- Transfer of LOX piping from the troughs to the rinse tower;
- Spot clean LOX piping on the rinse tower;
- Runoff of dissolved-phase TCE from LOX piping rinsed with deionized water on the rinse tower; and,
- Leaks from the vapor degreaser

Such releases of TCE would have been consistent with the normal handling and operations practices at the facility during this period from 1964-1971. In fact, the various transfers of TCE and draining of residual TCE onto the ground in the rinse tower area was an ongoing and deliberate part of site operations. While records of operational TCE use are not available for the Site, Wyle Laboratories documents indicate that TCE was also used in association with LOX-cleaning operations at a Wyle Laboratories facility in Norco, California.¹²⁴ Small daily operational releases of TCE over time can explain the extent and magnitude of the TCE contamination observed, and no other source(s) of TCE are necessary.

No accidents related to TCE are documented or reported by former Wyle Laboratories employees. There are no locations of TCE contamination at the Site that do not match the locations and transport pathways from

¹²⁴ Wyle Associates, 1958. High-Flow Liquid/Gaseous Oxygen Facility Now Available for Missile Component Tests. Wyle Associates Bulletin No. 3, April 15. (AR_HUNT00020153 at 159).

the known areas of operational TCE use. The total quantity of TCE contamination observed does not require any additional specific release incident to explain the magnitude of contamination.

Opinion 3:

- **70% of invoiced costs as of December 2019 are site investigatory in nature. The remaining 30% of claimed costs are related to site remediation (26%) or legal costs (4%).**

As of the date of this report, Arrow Electronics has produced 229 invoices for the environmental costs related to work performed at the Site between August 2000 and November 2019. A summary of each invoice is provided in Exhibit B. Kennedy/Jenks issued invoices with 95% of all costs. Several other vendors, including SGS Accutest (analytical laboratory), Cascade (driller), and Clean Harbors/Safety Kleen (waste disposal) issued invoices directly to Arrow Electronics beginning in March 2012, with most non-Kennedy/Jenks invoices being submitted in 2017 or later. Based on the invoices, and without consideration for the necessity and reasonableness of the associated costs, Arrow Electronics incurred a total of \$5,223,665 for environmental work associated with the Site and an additional \$207,518 of costs associated with document production and "legal support" related to insurance company mediation and legal activities for a total of \$5,431,184. Based on a review of Site technical documents and invoices, most invoiced costs (70%) appear to be investigatory in nature, while the remainder pertain to Site remedial efforts and human health risk assessment (26%) or document production and legal support (4%).¹²⁵ The document production and legal support costs, which were incurred between February 2016 and November 2019, appear to support a legal effort and are not considered to be part of either the investigation or remediation costs for the Site.

The environmental work¹²⁶ conducted for the Site was carried out by Kennedy/Jenks over five general phases.¹²⁷ These phases and their corresponding tasks are described below and summarized in Table 1.

- Phase 1 – Invoiced September 2000 through July 2006: Phase 1 consisted of initial Site characterization activities including installation of groundwater monitoring wells screened in the shallow regolith and the RBI, soil sampling and a geophysical investigation. Routine groundwater monitoring and associated reporting commenced during Phase 1. These activities were carried out in accordance with the initial characterization work plan submitted in October 2000,¹²⁸ (supplemented in February 2002¹²⁹) and the work plan for continued characterization submitted in

¹²⁵ Beginning in the March 2009 invoice, a "Communication Surcharge" is added to the total labor costs and direct expenses on all Kennedy/Jenks invoices. For the purposes of this evaluation, this surcharge has been distributed evenly among all costs (investigation, remediation and/or document production/legal support) in proportion to the cost category's share of total costs on each invoice.

¹²⁶ Excluding document production and legal support tasks.

¹²⁷ The non-Kennedy/Jenks invoices are assumed to be related to the scope of work performed by Kennedy/Jenks during the time period in which the non-Kennedy/Jenks costs were incurred.

¹²⁸ Kennedy/Jenks Consultants 2000. Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. October. (AR_HUNT00008656).

¹²⁹ Kennedy/Jenks Consultants, 2002. Geophysical Investigation Report and Characterization Work Plan Supplement, Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama. February 11.

October 2003.¹³⁰ The corresponding investigation results are respectively described in three investigation reports submitted in February 2002,¹³¹ February 2003,¹³² and February 2006.¹³³

- Phase 2 – Invoiced August 2006 through March 2010: Routine groundwater monitoring and reporting continued during Phase 2 along with additional Site characterization efforts. For invoices between August 2006 and July 2008, these characterization efforts consisted of scoping for future investigation. Actual Phase 2 Site investigation activities, including seismic reflection surveys and cone penetration testing (CPT) and membrane interface probe (MIP) testing took place between July and September 2008.¹³⁴ Additional regolith groundwater monitoring wells were installed between February and April 2009.¹³⁵ These activities were carried out in accordance with the Site Characterization Work Plan dated May 5, 2008¹³⁶ and are described in Site Characterization Report dated June 21, 2016.¹³⁷ Additionally, a screening-level indoor air survey was conducted in the High Bay and Seismic Test Building.¹³⁸
- Phase 3 – Invoiced March 2010 through April 2015: Investigation efforts at the Site continued during Phase 3 per the 2010 Site Characterization and Routine Groundwater Monitoring Work Plan, dated April 19, 2010.¹³⁹ These efforts included installation of bedrock wells and additional regolith wells. Development of a conceptual site model began during Phase 3 as did risk assessment activities and consideration of remedial options for the Site. Routine groundwater monitoring continued at the Site, changing in frequency from quarterly to semi-annually in 2012.¹⁴⁰ Phase 3 culminated with submission in June 2016 of the Site Characterization Report 2008-2015, which detailed all Site investigation activities to date and concluded that Site characterization was complete, and remaining data gaps would be addressed by remedial investigations.¹⁴¹
- Phase 4 – Invoiced July 2015 through December 2018: Site investigation activities carried out following submission of the Site Characterization Report 2008-2015 were conducted to support remediation efforts at the Site. These activities include continued groundwater monitoring of select

¹³⁰ Kennedy/Jenks Consultants 2003. Work Plan for Continued Soil and Groundwater Characterization, Wyle Laboratories Facility, Huntsville Alabama. October 20. (AR_HUNT00016235).

¹³¹ Kennedy/Jenks Consultants, 2002. Geophysical Investigation Report and Characterization Work Plan Supplement, Wyle Laboratories Facility, 7800 Governor Drive West, Huntsville, Alabama. February 11.

¹³² Kennedy/Jenks Consultants 2003. Soil and Groundwater Investigation Report – 2002, Wyle Laboratories Facility, Huntsville, Alabama. February 25. (AR_HUNT0000047).

¹³³ Kennedy/Jenks Consultants 2006. 2004 – 2005 Site Characterization Report, Wyle Laboratories Facility, Huntsville, Alabama. February 2. (AR_HUNT00006060).

¹³⁴ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at119).

¹³⁵ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at126).

¹³⁶ Kennedy/Jenks Consultants 2008. 2008 Site Characterization Work Plan, Wyle Laboratories Facility, Huntsville, Alabama. May 5. (AR_HUNT00000259).

¹³⁷ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107).

¹³⁸ Kennedy/Jenks Consultants, 2009. Summary Report for Screening-Level Indoor Air Survey, High Bay and Seismic Test Building Evaluations, Wyle Laboratories, Huntsville, Alabama. June 17. (AR_HUNT00008474).

¹³⁹ Kennedy/Jenks Consultants, 2010. Site Characterization and Routine Groundwater Monitoring Work Plan, Wyle Laboratories Facility, Huntsville, Alabama, April 19. (AR_HUNT00008607).

¹⁴⁰ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 137).

¹⁴¹ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at174).

wells¹⁴² and installation of new regolith, RBI and bedrock groundwater wells.¹⁴³ Remedial and risk assessment planning continued during Phase 4. As of July 28, 2017, risk assessment and remedial activities appeared to remain in the planning stages.¹⁴⁴

- Phase 5 – Invoiced January 2019 through November 2019: Remedial and risk assessment activities continued during Phase 5, including preparation, submittal, and revision of a Corrective Action Development Plan,¹⁴⁵ preparation, submittal, and revision of a Risk Management Evaluation,¹⁴⁶ and implementation of bioremediation enhanced reductive dechlorination (ERD) pilot test injections with associated regulatory correspondence. Groundwater monitoring of select wells also continued through Phase 5 to support the remedy.

¹⁴² Kennedy/Jenks Consultants, 2016. First Half 2016 Groundwater Monitoring Report, Former Wyle Laboratories – Huntsville, Alabama. December 30. (AR_HUNT00018031).

¹⁴³ Kennedy/Jenks Consultants 2017. Monitoring Well Installation Work Plan, MW-30, MW-31, and MW-32, Former Wyle Laboratories Facility, 7800 Madison Bl., Huntsville, Alabama 35806, ADEM Consent Order No. 15-033-CGW, April 28. (AR_HUNT00019986).

¹⁴⁴ Kennedy/Jenks Consultants, 2017. Invoice for Professional Services Number: 114354, 27 May through 28 July 2017, Wyle Laboratories – Huntsville, August 7. (AR_HUNT00014433).

¹⁴⁵ Kennedy/Jenks Consultants. 2019. Corrective Action Development Plan, Former Wyle Laboratories, Huntsville, Alabama. February 1. (AR_HUNT00024124)

¹⁴⁶ Kennedy/Jenks Consultants. 2019. Risk Management Evaluation for the Former Wyle Laboratories Facility, Huntsville, Alabama. May 1. (AR_HUNT00025155)

Table 1. Summary of Tasks for Environmental Work Performed at the Former Wyle Laboratories Facility: September 2000 — November 2019

Work Phase	Invoice Period	K/J Task Heading	K/J Task Number	Invoice Date First Billed	Invoice Date Last Billed
1	Sep 2000 - Jul 2006	General	NA	9/21/2000	8/16/2006
		Site Inspection	NA	9/21/2000	7/17/2006
2-3	Aug 2006 - Apr 2015	Project Mgmt. & Quality Control	Task 10	8/16/2006	4/21/2015
2	Aug 2006 - Feb 2009	Groundwater Monitoring 2006	Task 20	8/16/2006	2/27/2009
		Site Characterization 2006	Task 30	11/20/2006	2/27/2009
2	Mar 2009 - Mar 2010	Quarterly Groundwater Monitoring	Task 20	3/19/2009	3/1/2010
		Regolith Groundwater Well Installation & Destruction	Task 30	3/19/2009	2/3/2010
		Reporting for Seismic Reflection and CPT/MIP Investigations	Task 40	4/22/2009	2/3/2010
		High Bay Indoor Air Screening-Level Assessment	Task 50	7/2/2009	7/21/2009
		Routine Groundwater Monitoring	Task 20	5/6/2010	4/21/2015
3	Mar 2010 - Apr 2015	Field Characterization 2010	Task 30	5/6/2010	10/8/2014
		Remedial Investigation	Task 31	11/29/2011	7/18/2013
		Source Area Screening & Reporting	Task 40	9/15/2011	11/27/2013
		Initial Risk Assessment	Task 50	9/15/2011	7/18/2013
		Bedrock Well Installation WP	Task 60	3/1/2010	3/11/2010
		Equipment Purchase	Task 70	12/18/2009	1/6/2010
		Remediation Planning	Task 80	5/6/2010	3/17/2015
		Project Mgmt. & Agency Interaction	Task 01	7/20/2015	1/14/2019
4	Jul 2015 - Dec 2018	Site Characterization Report	Task 02	7/20/2015	8/7/2017
		Groundwater Monitoring	Task 03	7/20/2015	1/14/2019
		GWM Well Installation	Task 04	12/22/2016	1/14/2019
		RI Field Testing	Task 05	12/22/2016	11/9/2017
		Source Area Screening & Reporting	Task 06	10/28/2016	4/20/2018
		Risk Assessment	Task 07	7/20/2015	8/21/2018
		Initial Remedial Planning	Task 08	12/22/2016	1/14/2019
5	Jan 2019 – Nov 2019	Corrective Action Plan	N/A	2/1/2019	6/11/2019
		Communicaiton [sic] Charges	N/A	2/1/2019	12/3/2019
		GW Monitoring	N/A	2/1/2019	12/3/2019
		Wellhead Maintenance	N/A	2/1/2019	4/22/2019
		PM/Communications	N/A	2/1/2019	12/3/2019
		Pilot Test	N/A	2/1/2019	12/3/2019

Notes:

K/J - Kennedy/Jenks Consultants

With the exception of costs associated with indoor air sampling and reporting (\$20,614), all costs incurred in Phases 1 and 2 are investigatory in nature and reflect the multiple rounds of Site characterization necessary to define the extent and magnitude of TCE and related VOC contamination. Site investigation activities continued through Phase 3. Risk assessment, remedial planning, remedial investigation, and other remedial action activities began during Phase 3 and continued through Phase 5.

Costs for risk assessment were periodically incurred beginning in June 2011 through as recently as July 2019. Based on the review of Kennedy/Jenks invoices, these costs are primarily associated with planning for human health risk assessment, and do not reflect Site investigation costs. Additionally, costs for one round of indoor air sampling were incurred between April and June 2009. This sampling was targeted at assessing indoor air concentrations of TCE and tetrachloroethylene (PCE) in the High Bay and was requested by Wyle Laboratories.¹⁴⁷ The indoor air sampling was intended to evaluate the operational effectiveness of building ventilation prior to resumption of operations within the High Bay after a period of inactivity.¹⁴⁸ This indoor air sampling was therefore not part of Site characterization activities proposed in ADEM-approved work plans and was instead for the purposes of scoping an appropriate mitigation or remedial strategy.

Costs for remedial planning were first incurred in February 2010. These efforts were billed under the “Remediation Planning” and “Initial Remediation Planning” Kennedy/Jenks task headings. According to descriptions provided in invoice cover letters, these efforts consisted of discussions and considerations of alternatives for future remedial activities at the Site. For example, the cover letter to Kennedy/Jenks invoice no. 52142, dated November 22, 2010, describes costs billed under the Remediation Planning task as corresponding to “Onset of evaluating remediation technologies for the Site.”¹⁴⁹ Some of these alternatives were outlined in a letter report prepared by Kennedy/Jenks for Arrow Electronics dated May 28, 2010.¹⁵⁰ Remedial planning was ongoing as recently as July 2019, when Kennedy/Jenks revised their remedial approach and pilot testing plan based on new soil and groundwater analytical data from wells installed and sampled in April and May of 2019.¹⁵¹

Beginning in Phase 3, Arrow Electronics incurred costs associated with remedial investigation. These costs were billed under the “Remedial Investigation” and “RI Field Testing” task headings assigned by Kennedy/Jenks. Based on a review of Site investigation documents in concert with corresponding invoices, it appears that costs specifically assigned to remedial investigation are associated with efforts to select appropriate remedial techniques and plan for future remedial efforts, while efforts to characterize the extent and magnitude of contamination at the Site are assigned to other investigatory tasks. For example, the cover letter to Kennedy/Jenks invoice no. 724873, dated April 23, 2013, describes costs billed under the Remedial Investigation task as corresponding to “overview of project-wide groundwater geochemistry data to assess

¹⁴⁷ Kennedy/Jenks Consultants, 2009. Summary Report for Screening-Level Indoor Air Survey – High Bay and Seismic Test Building Evaluations, Wyle Laboratories, Huntsville, Alabama. June 17. (AR_HUNT00008474).

¹⁴⁸ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107 at 172).

¹⁴⁹ Kennedy/Jenks Consultants, 2010. Invoice for Professional Services, Invoice Number 52142, 25 September through 29 October 2010, Wyle Laboratories – Huntsville. November 22. (AR_HUNT00011558).

¹⁵⁰ Kennedy/Jenks Consultants, 2010. Project Summary and Preliminary Remediation Cost Estimates, Wyle Laboratories Facility In Huntsville, Alabama, Arrow Electronics – Wyle Huntsville. May 28 (AR_HUNT00000008).

¹⁵¹ Kennedy/Jenks Consultants, 2019. Letter to ADEM Re: Amendment to Pilot Injection Plan, Former Wyle Laboratories Facility– Huntsville, Alabama. July 8. (AR_HUNT00025291).

the feasibility of remedial efforts at the Site.”¹⁵² Therefore, for the purposes of this evaluation, costs for remedial investigation are considered remedial in nature.

Project management costs were incurred throughout Phases 2 and 3 under the Kennedy/Jenks task heading “Project Mgmt. and Quality Control.” Billing backup that would allow for a determination of the exact nature of these costs was not included in the invoices reviewed. Therefore, on Phase 2 and 3 invoices that included remedial costs as described above, costs billed to the Project Mgmt. and Quality Control task were distributed between remediation and investigation based on the relative percentage of pre-project management total costs that each category represented.

In Phase 4 and Phase 5, following submission of the 2008-2015 Site Characterization Report,¹⁵³ all Site environmental work, including groundwater monitoring and installation of new groundwater wells, is aimed at supporting future remedial efforts. Specifically, Kennedy/Jenks states,

*Following submittal of Kennedy/Jenks’ Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring of the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring is focused on supporting the remediation efforts and closely watching specific wells that are trending.*¹⁵⁴

Therefore, with the exception of costs relating to regulatory follow up associated with the 2016 Site Characterization Report,¹⁵⁵ and costs for the preparation of the First Half 2016 Groundwater Monitoring Report,¹⁵⁶ all non-document production/legal costs incurred in Phase 4 and Phase 5 are related to risk assessment and remedial activities and are considered remediation costs.

¹⁵² Kennedy/Jenks Consultants, 2010. Invoice for Professional Services, Invoice Number 72483, 26 January through 29 March 2013, Wyle Laboratories – Huntsville. April 23. (AR_HUNT00011466).

¹⁵³ Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama. June 21 (AR_HUNT00012107).

¹⁵⁴ Kennedy/Jenks Consultants, 2016. First Half 2016 Groundwater Monitoring Report, Former Wyle Laboratories – Huntsville, Alabama. December 30. (AR_HUNT00018031).

¹⁵⁵ In the March June and August 2017 invoices, costs are incurred for response to ADEM comments and transmittal of paper report copies to ADEM that are billed under the Site Characterization Report task. These costs are considered related to the Site Characterization report and are therefore not included with remedial costs incurred during Phase 4.

¹⁵⁶ The First Half 2016 groundwater monitoring event was conducted in May 2016. This event predates the submission of the June 21, 2016 Site Characterization report and is considered investigatory in nature. Therefore, costs associated with preparing this report are considered investigatory in nature as well. The First Half 2016 Groundwater Monitoring Report is dated December 30, 2016. Without backup descriptions of labor in the invoices, it is not possible to determine exactly what costs are attributable to the preparation and submission of this report. It was assumed that report preparation costs were incurred during the 11/26/2016 – 12/30/2016 billing period and are therefore present on Invoice No. 108258. However, while it is not stated on the cover letter, it is also assumed that this invoice includes costs for the Second Half 2016 groundwater monitoring event, which is remedial in nature, and was performed during December 2016 according to the Second Half 2016 Groundwater Monitoring Report dated April 19, 2017 (AR_HUNT00018290). On Invoice No. 108258, all direct expenses and two thirds of labor costs under Task 03 – Groundwater Monitoring were assigned to the Second Half 2016 groundwater event (and therefore remediation) and the remainder were assigned to the preparation of the First Half 2016 Groundwater Monitoring Report (and therefore investigation).

Opinion 4:

- **At a minimum, \$996,283 of claimed costs for the environmental work¹⁵⁷ associated with the Site is not reasonable and necessary, of which \$945,709 was incurred after December 6, 2004. In addition, I identified additional invoiced costs that appear to include unreasonable costs, but without appropriate invoice backup I was unable to determine to what degree such costs were reasonable.**

Based on a review of the invoices produced to date, Site environmental documents, and communications between ADEM and Arrow Electronics, the extent of environmental work (numbers, locations and depths of wells installed, frequency of groundwater monitoring, seismic investigations, etc.) and the long duration over which this work took place (nearly 20 years) is reasonable. As outlined above, ADEM repeatedly requested additional Site investigation work between 2000 and 2015. The scope of environmental work performed is also reasonable considering the complex hydrogeology. Due to this complexity, multiple rounds of environmental investigation were required to develop a conceptual site model and characterize the extent of VOC contamination to select an appropriate cleanup remedy. However, within the scope of this investigation, certain costs within the invoices reviewed were deemed unnecessary or unreasonable as described below.

The Kennedy/Jenks and other vendor invoices tabulated in Exhibit B were evaluated to determine the necessity and reasonableness of the incurred costs. “Unnecessary” and “unreasonable” costs were identified and excluded based on the following definitions:

- “Unnecessary” costs are those response action costs which were not required to investigate and remediate the Site. The costs for tasks or expenses that were not required by ADEM or, in my professional experience, typically performed at sites similar to the Site in question were categorized as “unnecessary.” Examples of necessary costs are those incurred for drilling of monitoring wells, preparation of work plans and summary reports, and groundwater sampling, whereas unnecessary costs are those typically covered by a consultant’s overhead but that were billed to Arrow Electronics or those costs that exceed the scope required to investigate and remediate the Site.
- “Unreasonable” costs are those that are not within a cost range typical of industry practice for the particular task or scope. Evaluation of the reasonableness of costs included examining billing rates, subcontractor costs, expenses, markups (e.g., the “communication fee” billed on Kennedy/Jenks invoices) and the amount of time billed as project management to determine how costs compare with typical industry practice.

The costs that remain after the specified unnecessary and unreasonable costs have been removed should not be understood to represent necessary and reasonable costs for the Site. Many of the invoices provided for review are not adequately documented in accordance with standard industry practice, and therefore the necessity and reasonableness of the costs incurred therein cannot be reasonably ascertained.

Typical billing backup that is omitted from some or all invoices includes:

1. Narrative of the scope of services performed during the billing period;
2. Proposals under which the work was conducted;

¹⁵⁷ The total does not include the \$207,518 expended for “document production” and “legal support” by Kennedy/Jenks to support the legal efforts associated with the Site. Refer to Opinion 3.

3. Itemized and dated billing notes for each professional;
4. Expense reports and documentation of incurred expenses; and
5. Subcontractor invoices.

For example, Kennedy/Jenks' November 2002 invoice for \$16,794.68 contains no backup or documentation to support the incurred costs.¹⁵⁸ Specifically, the invoice contains 117.5 hours of labor expended, but no narrative or billing notes to describe the scope of services performed. Additionally, direct expenses total \$2,266.68, and include "Delivery Services," "Prints and Reproduction," "Project Materials," "Subsistence," and "Travel," yet no expense reports are included to substantiate the expenses. The invoice references a "proposal dated 12 July 2000" but none of the proposals associated with Kennedy/Jenks' work were provided for review, and so cannot be used to understand the scope of services.

The absence of adequate billing backup likely masks unnecessary or unreasonable billing. A third cost category, "Potentially Unnecessary or Unreasonable," was created to capture those inadequately documented costs that, based on the limited amount of available information, appear to be unnecessary or unreasonable based on typical industry practice but are so poorly documented that a definitive determination is impossible. If a complete set of billing backup is provided, I reserve the right to revise this analysis and report on an updated calculation of identified costs that are unnecessary or unreasonable.

Notwithstanding the fact that the Kennedy/Jenks invoices do not sufficiently document the costs incurred, and that other unnecessary and/or unreasonable costs were likely charged but could not be identified without the appropriate backup documentation, four types of costs were identified and specifically excluded as unnecessary or unreasonable: certain unnecessary administrative expense costs, costs associated with unnecessary travel to/from the Site, costs associated with unreasonable groundwater sampling and reporting, and unnecessary or unreasonable Site Investigation Report costs. Some of the unnecessary or unreasonable costs were incurred prior to December 6, 2004,¹⁵⁹ therefore the unnecessary or unreasonable costs incurred before December 6, 2004 and on or after December 6, 2004 are identified, where applicable. Furthermore, several categories of potentially unnecessary or unreasonable costs were identified. Each of these categories of excluded or potentially excludable costs is discussed in more detail below.

Unnecessary administrative costs

In at least seven separate instances,¹⁶⁰ it appears that Kennedy/Jenks billed Arrow Electronics for the cost of professional licensing in the State of Alabama. Customarily, consultants bear their own costs of professional licensing and do not charge clients for the costs required to obtain those licenses. While the total sum of the licensing is not substantial (\$1,096) compared to the total cost of the project, these unnecessary costs demonstrate that unnecessary or unreasonable administrative billing likely took place,

¹⁵⁸ AR_HUNT00009598 through AR_HUNT00009599

¹⁵⁹ Arrow Electronics first provided Liberty Mutual Insurance Company (Liberty Mutual) and Travelers Casualty and Surety Company (Travelers), respectively, with a notice of potential claims (NOPC) for two Wyle Laboratories facilities including the Site in letters dated December 6, 2004.

¹⁶⁰ Invoice 11094 (8/12/2005), \$165 charged for "Alabama Board of Licensure for PG"; Invoice 26031 (8/7/2007), \$165 charged for "State of Alabama – Board of Licens"; Invoice 42360 (8/12/2009), \$162 charged for "State of Alabama – Board of Licens"; Invoice 59006 (9/15/2011), \$162 charged for "Renewal of State of Alabama licensing for PG" and "State of Alabama – Board of Licens"; Invoice 107374 (12/22/2016), \$270 charged for "State of Alabama – Board of Licens." Invoice 111600 (5/23/2017), \$162 charged for "State of Alabama – Board of Licens." Invoice 134435 (11/11/2019), \$171.60 charged for and the expense matches the receipt for "Alabama Board of Licensure for Professional Geologists." The charge on invoice 111600 was reversed on invoice 114354 (8/7/2017).

and suggests additional unnecessary or unreasonable billing may be identified if adequate documentation was provided.

Unnecessary travel costs

Kennedy/Jenks travel costs totaling at least \$266,127¹⁶¹ were excluded as unnecessary. Kennedy/Jenks' does not have an office local to the Site, and instead flew staff to the Site from remote offices to perform a wide array of tasks. The travel costs could have easily been avoided if Arrow Electronics utilized one of the various environmental consultants local to the Huntsville, Alabama area,¹⁶² or if Kennedy/Jenks utilized a local environmental services firm to perform routine tasks. In fact, in parallel to the site investigation and remediation activity being performed by Kennedy/Jenks, a local consultant (Mid South Testing Inc.) has been performing site investigation, remediation, and groundwater monitoring at the Site.^{163,164,165} The following table summarizes the tasks for which unnecessary travel costs were charged. Refer to Exhibit C for a comprehensive summary of charges by task and travel costs.

Task ID	Travel Costs (pre-12/6/2006)	Travel Costs (all dates)	Share of Total Travel Costs (all dates)
Task 20 - Routine Groundwater Monitoring	\$ -	\$ 105,830	40%
TSK 03 - Groundwater Monitoring	\$ -	\$ 40,776	15%
Task 30 - Field Characterization	\$ -	\$ 30,810	12%
General	\$ 15,804	\$ 24,573	9%
Task – Pilot Test	\$ -	\$ 15,674	5.9%
Task – GW Monitoring	\$ -	\$ 12,194	4.6%
Task N.## and "**** -- Default Task"	\$ -	\$ 6,776	2.5%
Task 10 - Project Mgmt. & Quality Control	\$ -	\$ 6,537	2.5%
TSK 04 - GWM Well Installation	\$ -	\$ 5,900	2.2%
TSK 01 - Project Mgmt. & Agency Interactions	\$ -	\$ 5,051	1.9%
Site Inspection	\$ 156	\$ 2,779	1.0%
TSK 06 - Source Area Screening and Reporting	\$ -	\$ 2,387	0.9%
Travel that Cannot be Assigned to a Task	\$ 1,949	\$ 1,949	0.7%
TSK 07 - Risk Assessment	\$ -	\$ 1,389	0.5%
Task – PM/Communications	\$ -	\$ 1,318	0.5%
Task 50 - High Bay Indoor Air Screening	\$ -	\$ 1,081	0.4%
Task – Communicaiton [sic] Charges	\$ -	\$ 710	0.3%
Task 80 - Remediation Planning	\$ -	\$ 276	0.1%
Task – Wellhead Maintenance	\$ -	\$ 117	0.0%
Total	\$ 17,909	\$ 266,127	100%

Notes:

Excludes tasks for which no travel costs were identified.

¹⁶¹ Does not include \$9,057 in travel costs associated with the "Document Inventory" task or the \$251 in travel costs associated with the "Legal" task that is unrelated to the response action.

¹⁶² A cursory search for environmental consultants local to the Huntsville, Alabama area identified at least three nationally known environmental consulting firms and several local/regional consulting firms which Arrow Electronics could have utilized.

¹⁶³ Mid South Testing, Inc., 2016. Underground Storage Tank Corrective Action Plan - Wyle Laboratories, Huntsville, Alabama. July 12.

¹⁶⁴ Mid South Testing, Inc., 2017. Corrective Action Report Soil Remediation by Excavation - Wyle Laboratories, Huntsville, Alabama. May 30.

¹⁶⁵ Mid South Testing, Inc., 2019. Groundwater Monitoring Report - Wyle Laboratories, Huntsville, Alabama. January 7.

Task IDs are from Kennedy/Jenks invoices. Some tasks include multiple names (e.g., Task 30 descriptions also include "Site Characterization 2006," "Regolith GW Well Install and Destruct," and "Field Characterization 2010."

Excluded travel costs included airfare, car rental, and sustenance. Costs associated with a self-storage unit were also excluded as travel costs based on the reasoning that the self-storage unit would be unnecessary for a local consultant to rent because they would already have a location at which to store equipment and materials. Equipment and materials were not excluded based on the assumption that any consultant performing the work would have obtained equipment and materials, although it is reasonably expected that a local consultant would have had many pieces of equipment on hand and not had to rent them.

The staff travel time billed to Arrow Electronics by Kennedy/Jenks related to transit from other offices to the Site were not identified, and therefore were not excluded as unnecessary costs because Kennedy/Jenks does not provide billing notes that identify how much time, exactly, was billed for travel time versus how much time was billed for work on Site. However, as discussed in the subsection that follows, the amount of field effort for groundwater sampling indicates that a significant amount of time is associated with travel and is, in fact, unreasonable.

In total, the \$266,127 of unnecessary travel costs represents 5.3% of the \$4,967,390 billed by Kennedy/Jenks between 2000 and December 3, 2019 for response action costs (excludes insurance-related document production and legal support costs). Furthermore, of the \$266,127 of unnecessary travel costs, \$17,909 were incurred prior to December 6, 2004 and \$248,218 were incurred on or after December 6, 2004.

Unreasonable Groundwater Sampling and Reporting Costs

The amount of time Kennedy/Jenks staff billed for routine groundwater sampling and reporting is unreasonable.¹⁶⁶ Groundwater sampling has occurred at the Site since 2000 on regular intervals (quarterly, or semiannually), and been followed up by standard groundwater monitoring event reports. In the early years of sampling the sampling costs were combined with other tasks, but from July 1, 2006 to present groundwater monitoring tasks have been clearly delineated in invoice tasks. As shown in Exhibits C and D, Kennedy/Jenks has billed \$1,646,571 for at least 30¹⁶⁷ groundwater monitoring events that included a total of 739 samples since July 1, 2006 (an average of 25 wells per event). As discussed below, at least \$586,610 of groundwater sampling and reporting costs that were incurred over the duration of the site investigation are unreasonable.

Each groundwater sampling event at the Site involved gauging and collecting analytical samples from up to several dozen groundwater monitoring wells located throughout the Site.¹⁶⁸ The amount of technician time spent during each groundwater sampling period, as well as the number of groundwater samples collected during each routine groundwater sampling event is tabulated in Exhibit D. Kennedy/Jenks' staff averaged approximately 4.6 hours billed for each groundwater sample collected.¹⁶⁹ This is far outside of the norm for

¹⁶⁶ Due to the insufficient billing backup, Roux assumes that the tasks "Task 20 - Routine Groundwater Monitoring" and "TSK 03 – Groundwater Monitoring" includes all of the monitoring and reporting costs associated with groundwater sampling and reporting.

¹⁶⁷ One or more groundwater monitoring events were likely performed in 2019 based on the number of technician hours billed on invoices. The associated groundwater monitoring reports were not available for review.

¹⁶⁸ This analysis assumes the scope of work associated with the billing task "Routine GW Monitoring" is solely associated with groundwater monitoring and the 2019 sampling for which the groundwater monitoring report (and associated documentation of the number of wells sampled) was not available.

¹⁶⁹ 859 samples collected over 3,910.5 hours. Excludes the Q4 2000 sampling for which staff billing associated with groundwater sampling could not be determined based on the invoice.

groundwater sampling, which typically averages approximately 1-2 hours per well, including time for mobilization between wells, calibrations, decontaminating equipment, collecting duplicates, and sample handling.

Furthermore, the costs Kenney/Jenks incurred preparing groundwater monitoring reports appears excessive, although identifying the costs for any single report is difficult because there are insufficient billing notes. Examples of potentially excessive groundwater reporting costs include:

- Invoice 4124 (10/11/2004). The scope of work provided in Kennedy/Jenks invoice is for “**Initial** preparation of semiannual groundwater monitoring and characterization reports” [emphasis added]. Subsequent invoices reference additional work on these monitoring reports. However, the “initial” costs alone total \$11,563.00. At this point in the investigation (2004) Kennedy/Jenks had prepared several groundwater monitoring reports, which should have made this monitoring report a relatively streamlined product. The fact that the “initial” preparation cost over \$11,000 suggests that the entire report cost was likely excessive. Exact report costs and the scope of work performed to prepare the reports cannot be determined because no billing notes are provided with the invoices.
- Invoices 81559, 83506, 84372, 86197, 86642 (2014, various months). All of these invoices included follow up from the Q1 2014 monitoring event and preparation of the Q1 2014 groundwater monitoring report.¹⁷⁰ Unlike most other invoices, there are no other tasks included in the brief billing memo that impede estimation of the post-monitoring costs. In total, the post-monitoring work and monitoring report preparation cost at least \$14,185.17 and required at least 75 man-hours of labor.¹⁷¹ The Q1 2014 groundwater monitoring report consists almost exclusively of form text and summary information, plus a small number of tables updated with analytical results from the monitoring event. The groundwater monitoring report alone should not have cost over \$14,000. The basis for actual costs incurred cannot be determined because no billing notes are provided with the invoice. Furthermore, the excessive cost of this monitoring report suggests other monitoring reports were also unreasonably costly.

As discussed previously, Kennedy/Jenks’ billing backup is incomplete, which renders identification of unnecessary or unreasonable costs very difficult on any individual invoices. Nonetheless, unnecessary and unreasonable groundwater sampling and reporting costs can be estimated based on overall average costs incurred by Kenney/Jenks versus typical costs incurred for such activities by other professionals. The unreasonable costs associated with Kennedy/Jenks’ groundwater sampling were calculated by difference when compared to a reasonable cost estimate for an average groundwater sampling event consisting of 25 wells as follows (excluding travel, laboratory, and subconsultant costs):

- Technician sampling of 25 wells at 2 hours per well (the high end of what is typical) at \$99 per hour¹⁷² (\$4,950);

¹⁷⁰ Note that invoice 83506 (for services through 4/25/2014) states that it was for “initial work on the **Q1 2013** groundwater monitoring report” and invoice 84372 (for services through 6/27/2014) states that it was for “continued work on the **Q1 2013** groundwater monitoring report” [emphases added]. The Q1 2013 groundwater report was submitted approximately 10 months prior to this invoicing period, on June 7, 2013. It’s assumed the invoices include a typographical error, and are related to the Q1 2014 groundwater monitoring report, which is contemporaneous with the invoicing period, instead of the Q1 2013 groundwater monitoring report.

¹⁷¹ Sum of Task 20 charges on each invoice.

¹⁷² \$99 per hour is conservative because it represents the maximum technician rate billed for groundwater sampling, as shown on Exhibit D. Actual technician billing rates range from \$73 to \$99 per hour (Exhibit D).

- Technician work of 8 additional hours per event to address other field scopes (gauging, surface water sampling, etc.) at \$99 per hour (\$792);
- Management of field effort of \$2,500 per event
- Equipment costs of \$2,500 per event;
- Data analysis and figure preparation of \$2,000 per event;
- Post-sampling follow-up with laboratory, disposal company, surveyor, etc. of \$2,500 per event; and
- Report preparation costs of \$10,000 per event (assumes each event generates one report);

In total, a reasonable cost to sample 25 wells and prepare a monitoring report is approximately \$25,242. Conservatively, for the purposes of this estimate, I rounded the reasonable estimate up to \$30,000 for an average 25 well sampling event and associated reporting.

As shown in the table below, I then compared that cost to the actual labor and expenses (excluding travel, laboratory, subconsultants, etc.) associated with groundwater sampling and reporting incurred by Kennedy/Jenks. The average cost incurred by Kennedy/Jenks is approximately \$46,764 (excluding the unnecessary travel expenses discussed previously), which is substantially in excess of what is reasonable (\$30,000). The difference between these estimates (\$16,764) was multiplied by the number of events from 7/1/2006 to present (30), and then extrapolated to the entire monitoring period from 2000 to present based on 86% of the site investigation samples being collected from 7/1/2006 to present. The result is that \$586,610 of Kennedy/Jenks' groundwater sampling and reporting costs are unreasonable.

7/1/2006 through Present ¹		
Total Cost of Groundwater Monitoring Tasks ²	\$	1,646,571
Subconsultant Costs, Groundwater Monitoring Tasks	\$	84,866
Travel Expenses, Groundwater Monitoring Tasks	\$	158,799
Groundwater Monitoring Labor, Reporting, and Equipment	\$	1,402,906
Number of Groundwater Samples Collected ³		739
Number of Groundwater Sampling Events ³		30
Average Number of Groundwater Samples Per Event		25
Average Cost (Labor, Equipment, Reporting) Per Event	\$	46,764
Reasonable Average Cost (Labor, Equipment, Reporting) Per Event ⁴	\$	30,000
Potentially Unreasonable Cost Per Event	\$	16,764
Potentially Unreasonable Groundwater Monitoring Cost	\$	502,906
2000 through Present		
Number of Groundwater Samples Collected ³		862
Share of Groundwater Samples Collected 7/1/2006 through Present		86%
Total Potentially Unreasonable Groundwater Monitoring Costs	\$	586,610

¹Groundwater monitoring occurred before 6/30/2006, but the invoice task structure and associated billing notes do not allow for identification of unique groundwater monitoring costs.

The unreasonable groundwater monitoring costs incurred prior to December 6, 2004 are estimated based on the total number of groundwater samples collected prior to December 6, 2004 (48, as shown in Attachment D) versus the total number of groundwater samples collected (862). The pre-December 6, 2004 samples account for 5.6% all groundwater samples collected, and therefore the amount of unreasonable groundwater monitoring costs incurred before December 6, 2004 represents \$32,665 (5.6% of \$586,610), with the remaining \$553,945 incurred on or after December 6, 2004. As discussed previously, many of the invoices provided for review are not adequately documented in accordance with standard industry practice. The lack of specificity and detail in invoices precludes a more detailed assessment of unnecessary and unreasonable groundwater monitoring costs prior to December 6, 2004.

Unnecessary or Unreasonable Site Investigation Report Costs

In 2015 Kenney/Jenks estimated that the Site Investigation Report would cost \$40,000.¹⁷³ As of August 2017, Kennedy/Jenks had expended \$182,450 on the Site Investigation Characterization Report task, missing their original estimate by 356%.

Site characterization reports are predictable and relatively straight forward to estimate costs for (as opposed to field work, which can fluctuate based on unanticipated field conditions). Kennedy/Jenks' initial estimate of \$40,000 is a reasonable sum, especially considering that many of the groundwater monitoring reports and data tabulations were already prepared during the course of the investigation. The basis for the extraordinary expansion of costs is not provided in the invoices, except that "the scope and budget of this report was misjudged"¹⁷⁴ by Kennedy/Jenks. The labor hours that resulted in \$182,450 being incurred do not include billing notes, which inhibits an analysis of what portion of the Site Characterization Report preparation efforts were reasonable and what portion of those efforts was excessive or why Kennedy/Jenks overspent their budget by over \$140,000. Consequently, the difference between the original Site Characterization Report estimate and what has been billed (\$142,450) is unnecessary or unreasonable.

Other Costs That Appear Potentially Unnecessary or Unreasonable

- The billing memorandum associated with Kennedy/Jenks invoice 52708 (\$31,522.66) references "Procure groundwater dataset for Wyle Laboratories as part of pending property sale." It is unlikely that consultant support for a property transaction is necessary to the response action. No itemized billing notes are provided to identify the scope of work, how much time was spent on unnecessary property transaction costs, or if similar activities were performed on behalf of Arrow Electronics and billed on other invoices. Without further documentation the magnitude of these potentially unnecessary and unreasonable costs cannot be determined.
- Labor rates for select staff on two Kennedy/Jenks invoices (5668 and 37458) exceed their typical range, and appear to be unreasonable. Specifically, a substantial multiplier is applied to certain labor rates that inflates certain labor costs above the Kennedy/Jenks' standard billing rates. For example, on invoice 37485 technician labor is primarily billed at \$95 per hour. However, there is also an entry for a technician billing at a rate of \$51.98 per hour, with a multiplier of 3.10 applied, resulting in an effective billing rate of \$161.14 per hour, which is a 70% increase over the standard billing rate. No justification for this increase is provided, and likely represents either a billing error or unreasonable billing practices. While this practice is not widespread, it does suggest that additional unnecessary or unreasonable billing practices may be identified if more complete backup is provided for review.

¹⁷³ Invoice 94131, Table 1, Task 2 Site Characterization Report Authorized Budget.

¹⁷⁴ Invoice 97829 billing memorandum.

Without further documentation the magnitude of these potentially unnecessary and unreasonable costs cannot be determined. On the two invoices reviewed, the excessive charges amount to \$642.

- Kennedy/Jenks includes four hours of labor associated with a phase called “Non-Billable Effort” on at least one invoice (134435) totaling \$988.80. Without adequate documentation, it remains uncertain why the labor attributed to this phase was included on the invoice and billed to Arrow Electronics. Non-billable labor is typically associated with overhead-related or non-project-specific tasks and is absorbed by the consultant. Including this labor on an invoice to Arrow Electronics represents either a billing error or an unreasonable billing practice. No itemized billing notes are provided to identify the scope of work associated with this phase.
- Kennedy/Jenks provides almost no documentation of expenses with their invoices.¹⁷⁵ I identified at least \$212,038¹⁷⁶ of undocumented expenses (i.e., missing vendor invoices, missing expense reports) associated with equipment, materials, shipping, employee non-travel expenses, and similar costs.¹⁷⁷ Without adequate documentation it remains uncertain which expenses are unnecessary or unreasonable. While some of these expenses are likely reasonable and necessary (e.g., equipment rental costs associated with groundwater monitoring) certain expenses do not appear to fit within typically incurred ranges for Kennedy/Jenks’ scope of work. For example:
 - Administrative expenses associated with professional licensing were outright excluded, as discussed previously, because the scope of the cost could be determined from the invoice, thereby demonstrating that costs Kennedy/Jenks characterizes as expenses may not be necessary or reasonable response action costs.
 - On invoice 004290022 Kennedy/Jenks bills for \$7,616.23 in “Project Materials.” This is a significant sum to invoice without documentation of the incurred costs.
 - Charges for equipment rentals appear excessive given the scope of work on many invoices. For example, the “Direct Supplies, Materials, and Other” associated with the Second Quarter 2009 Groundwater Monitoring event total at least \$8,932.97 (invoice 41541), which appears excessive, even for a large groundwater monitoring event.

In summary, costs that were identified as unnecessary or unreasonable are shown in the following table. While the other costs were identified as potentially unnecessary or unreasonable, without backup documentation the degree to which those costs were unnecessary or unreasonable could not be determined.

¹⁷⁵ Some early invoices include documentation of expenses.

¹⁷⁶ Excludes the administrative expenses associated with professional licensing that were clearly identifiable as unnecessary.

¹⁷⁷ Small expenses associated with tasks that are not typically documented as thoroughly, such as copying, communication, and mileage charges were not included in the total amount of undocumented expenses. Note that some expenses associated with groundwater monitoring have not been uniquely identified. Some component of the unnecessary and unreasonable groundwater monitoring and reporting costs may be associated with expenses that are included in this total.

Scope of Work/Cost	Unnecessary or Unreasonable Costs		
	pre-December 6, 2004	December 6, 2004 or later	Total
Administrative	\$0	\$1,096	\$1,096
Travel	\$17,909	\$248,218	\$266,127
Groundwater Sampling/Reporting	\$32,665	\$553,945	\$586,610
Site Investigation Report	\$0	\$142,450	\$142,450
Total	\$50,574	\$945,709	\$996,283

Opinion 5:

- **Of the \$5,431,184 in claimed costs incurred to date, \$605,479 (11.15% of total claimed costs) were incurred prior to December 6, 2004, \$687,333 in costs (12.66% of total claimed costs) were incurred from December 6, 2004 through July 4, 2007, \$2,142,810 (39.45% of total claimed costs) were incurred from July 5, 2007 through April 23, 2014, \$93,355 (1.72% of total claimed costs) were incurred from April 24, 2014 through February 8, 2015, and the remaining \$1,902,206 (35.02% of total claimed costs) were incurred beginning February 9, 2015.**¹⁷⁸

Arrow Electronics first provided Liberty Mutual Insurance Company (Liberty Mutual) and Travelers Casualty and Surety Company (Travelers), respectively, with a notice of potential claims (NOPC) for two Wyle Laboratories facilities including the Site in letters dated December 6, 2004.^{179,180} With respect to the Site, this NOPC is in response to the October 2004 communication from ADEM to Arrow Electronics,¹⁸¹ in which ADEM concludes that the underlying aquifer and a downgradient public supply well have been impacted from VOC contamination beneath the Site.

In a letter dated June 26, 2007, ADEM found Arrow Electronics in violation of Alabama State code and required that Arrow Electronics submit a work plan for further Site investigation. Arrow Electronics forwarded this letter to Liberty Mutual on July 5, 2007.¹⁸² Travelers was sent the same ADEM letter as Liberty Mutual on July 5, 2007, but the July 5, 2007 cover letter was addressed to Resolute Management,

¹⁷⁸ The cost categorization of site investigation, remediation, and mediation costs for each time period can be readily determined, if necessary. In addition, the costs identified within each time period that are unreasonable or unnecessary can be readily determined, if necessary.

¹⁷⁹ Arrow Electronics, Inc., 2004. Letter to Travelers Casualty and Surety Company, Attention: Claims Department. December 6. (TRAV00540)

¹⁸⁰ Arrow Electronics, Inc., 2004. Letter to Liberty Mutual Insurance Company, Attention: Claims Department. December 6 (LM 0000547)

¹⁸¹ ADEM, 2004. Former Wyle Laboratories Facility, Huntsville, Madison County, Alabama, Groundwater Incident No. GW 01-01-03. October 13. (AR_HUNT00002628)

¹⁸² Arrow Electronics, Inc. 2007. Policyholder-Arrow Electronics, Inc., as successor to Wyle Laboratories, Inc. with respect to the following Liability Insurance Policies: July 5 (LM 0000236)

Inc, and Travelers initially assumed it was copied on the communications for information purposes only.¹⁸³

According to Arrow Electronics, the duty of Liberty Mutual and Travelers to pay costs that Arrow Electronics incurred with respect to environmental conditions at or emanating from the Huntsville Site commenced no later than April 24, 2014.^{184,185}

On February 9, 2015, Arrow Electronics and ADEM enter into a Consent Order (Order No. 15-033-CGW) requiring Arrow Electronics to address environmental conditions at the Site.

Based on the above dates and the invoices produced by Arrow Electronics in Exhibit B, the total incurred costs have been tabulated for five time periods: 1) before December 6, 2004, 2) from December 6, 2004 through July 4, 2007, 3) from July 5, 2007 through April 23, 2014, 4) from April 24, 2014 through February 8, 2015, and 5) beginning February 9, 2015. In lieu of billing backup for the invoices containing detailed efforts by date, costs billed in invoice periods that span these threshold dates were prorated at a daily rate by dividing the invoice total by the number of days in the invoice period. The tabulation of invoices and the allocation of invoiced costs that span the threshold dates as shown in Table 2. Based on this evaluation, \$605,479 (11.15% of total claimed costs) were incurred prior to December 6, 2004, \$687,333 in costs (12.66% of total claimed costs) were incurred from December 6, 2004 through July 4, 2007, \$2,142,810 (39.45% of total claimed costs) were incurred from July 5, 2007 through April 23, 2014, \$93,355 (1.72% of total claimed costs) were incurred from April 24, 2014 through February 8, 2015, and the remaining \$1,902,206 (35.02% of total claimed costs) were incurred beginning February 9, 2015.

¹⁸³ Arrow Electronics, Inc. 2007. Policyholder-Arrow Electronics, Inc., as successor to Wyle Laboratories, Inc. with respect to the following Liability Insurance Policies: July 5 (TRAV00596, 603)

¹⁸⁴ United States District Court Central District of California. Case No. 2:17-cv-05247-JFW. Plaintiff Arrow Electronics, Inc. Responses and Objections to Defendant Travelers Casualty and Surety Company's Interrogatories, Set One. October 24, 2017, p 5.

¹⁸⁵ United States District Court Central District of California. Case No. 2:17-cv-05247-JFW. Plaintiff Arrow Electronics, Inc. Responses and Objections to Defendant Liberty Mutual Insurance Company's Special Interrogatories, Set One. October 24, 2017, p 5.

Table 2. Invoiced Costs By Time Period

Time Period	Before Dec 6, 2004	Dec 6, 2004 - Jul 4, 2007	Jul 5, 2007 - Apr 23, 2014	Apr 24, 2014 - Feb 8, 2015	Feb 9, 2015 and later
Target Date	12/6/2004	7/5/2007	4/24/2014	2/9/2015	11/22/2019
Overall Invoice Period	08/01/2000 - 12/31/2004	11/27/2004 - 07/27/2007	05/26/2007 - 04/25/2014	03/28/2014 - 2/27/2015	12/26/2014 - 11/22/2019
Invoice Period Fully Captured within Time Period	08/01/2000 - 11/26/2004	01/01/2005 - 05/25/2007	07/28/2007 - 03/28/2014	04/26/2014 - 12/26/2014	2/28/2015 - 11/22/2019
Costs Fully Captured within Time Period	\$601,477.16	\$663,748.17	\$2,126,892.19	\$85,779.84	\$1,899,289.73
Invoice Period Capturing Target Date (Target Date Invoice)	11/27/2004 - 12/31/2004	05/26/2007 - 07/27/2007	03/28/2014 - 04/25/2014	12/26/2014 - 2/27/2015	10/26/2019 - 11/22/2019
Remaining Costs from Previous Target Date Invoice	NA	\$11,562.24	\$6,912.82	\$667.04	\$2,916.74
No. Days Captured by Target Date Invoice	35	63	29	64	28
Target Date Invoice Amount	\$15,564.55	\$18,935.12	\$9,672.12	\$9,824.80	\$21,219.73
Target Date Invoice \$/day	\$444.70	\$300.56	\$333.52	\$153.51	\$757.85
Prorated Period	9 days	40 days	27 days	45 days	NA
Prorated Amount	\$4,002.31	\$12,022.30	\$9,005.08	\$6,908.06	NA
Remaining Amount	\$11,562.24	\$6,912.82	\$667.04	\$2,916.74	NA
Time Period Claimed Costs	\$605,479.47	\$687,332.71	\$2,142,810.09	\$93,354.94	\$1,902,206.47
% Overall Claimed Costs	11.15%	12.66%	39.45%	1.72%	35.02%

Opinion 6:

- **The reasonably anticipated remaining site remediation work is limited to ERD and groundwater monitoring.**

Both Kennedy/Jenks' and ADEM have concurred that soil and vapor intrusion exposure pathways do not pose an unacceptable risk to workers at the Site and that no additional soil or soil vapor investigation or remediation is necessary.¹⁸⁶ Shallow groundwater is currently under corrective action to reduce the potential for future impacts to bedrock groundwater as a future drinking water supply in and near the Site. Kennedy/Jenks' preferred technology for remediation is enhanced reductive dechlorination (ERD) – an in-situ groundwater remediation approach. However, ERD alone is not expected to drop the TCE concentrations below the MCL. Kennedy/Jenks expects that after ERD, natural attenuation can address residual chlorinated VOC concentrations in the groundwater resource within a predictable timeframe.¹⁸⁷

Roux also anticipates that once the TCE concentrations are reduced in the groundwater on-site through ERD, natural attenuation can address residual concentrations in the groundwater resource within a predictable timeframe.

¹⁸⁶ ADEM. 2019. Risk Management Evaluation. Former Wyle Laboratories, Huntsville, Alabama. July 31.

¹⁸⁷ Kennedy/Jenks Consultants, 2019. Corrective Action Development Plan - Former Wyle Laboratories Facility, Huntsville, Alabama. February 1.

FIGURES

1. Site Vicinity Map
2. Former Wyle Laboratories Site Study Area
3. Site Study Area, Southwest – Northeast Cross Section
4. Areas of Known VOC Impact In Groundwater
 - a. Zone 1 (Upper Shallow Regolith)
 - b. Zone 2 (Lower Shallow Regolith)
 - c. Zone 3 (Middle Regolith)
 - d. Zone 4 (Deep Regolith)
 - e. Zone 5 (Regolith/Bedrock Interface)



Image Source: ESRI World Topographic Map
Site Boundary Source: Kennedy/Jenks Consultants, 2016. Site Characterization Report 2008-2015, Former Wyle Laboratories, Huntsville, Alabama, June 21 (AR_HUNT00012107 at 186). (Color version obtained from ADEM eFile portal)

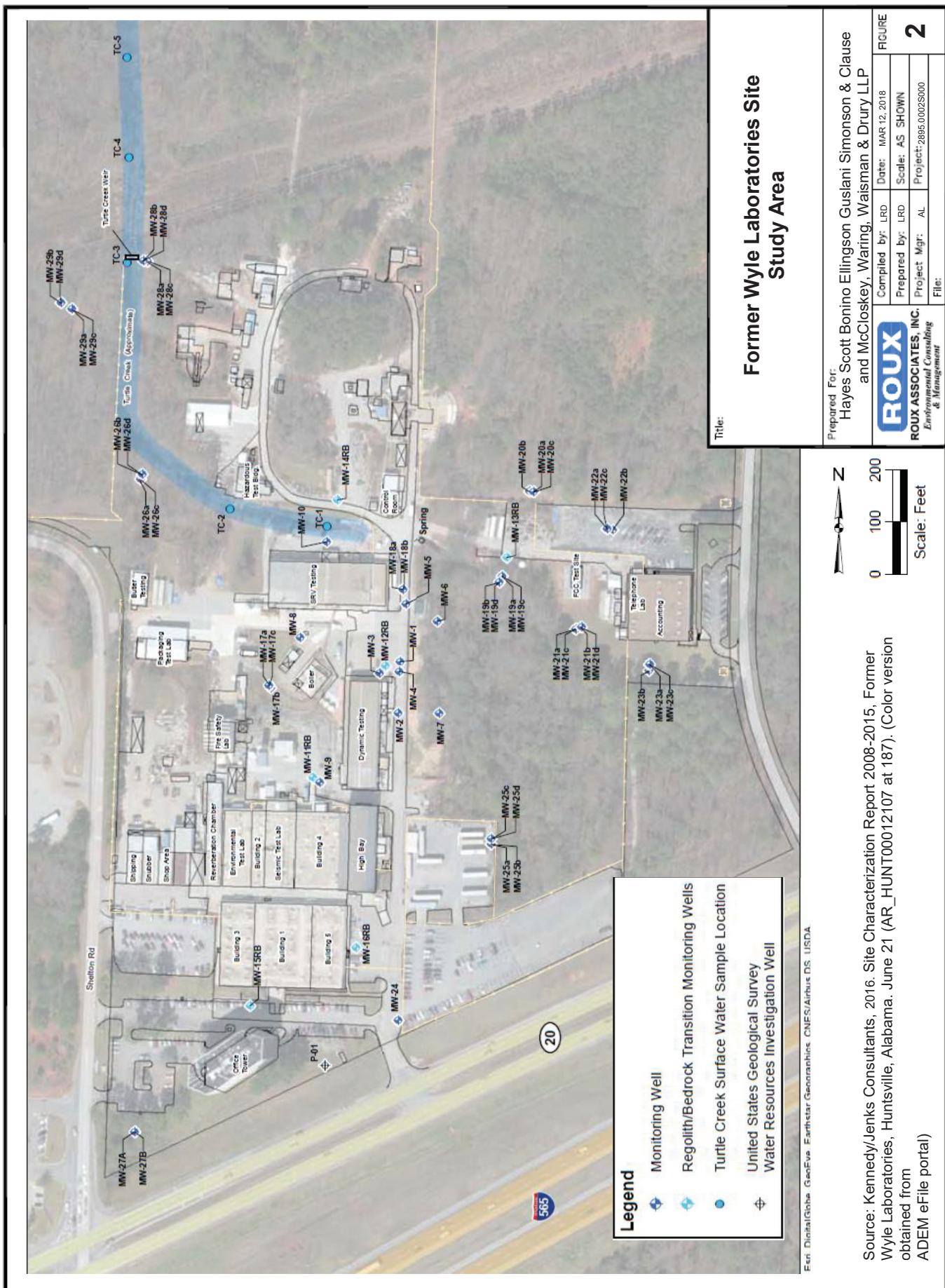
Site boundary and Study Area boundaries approximate

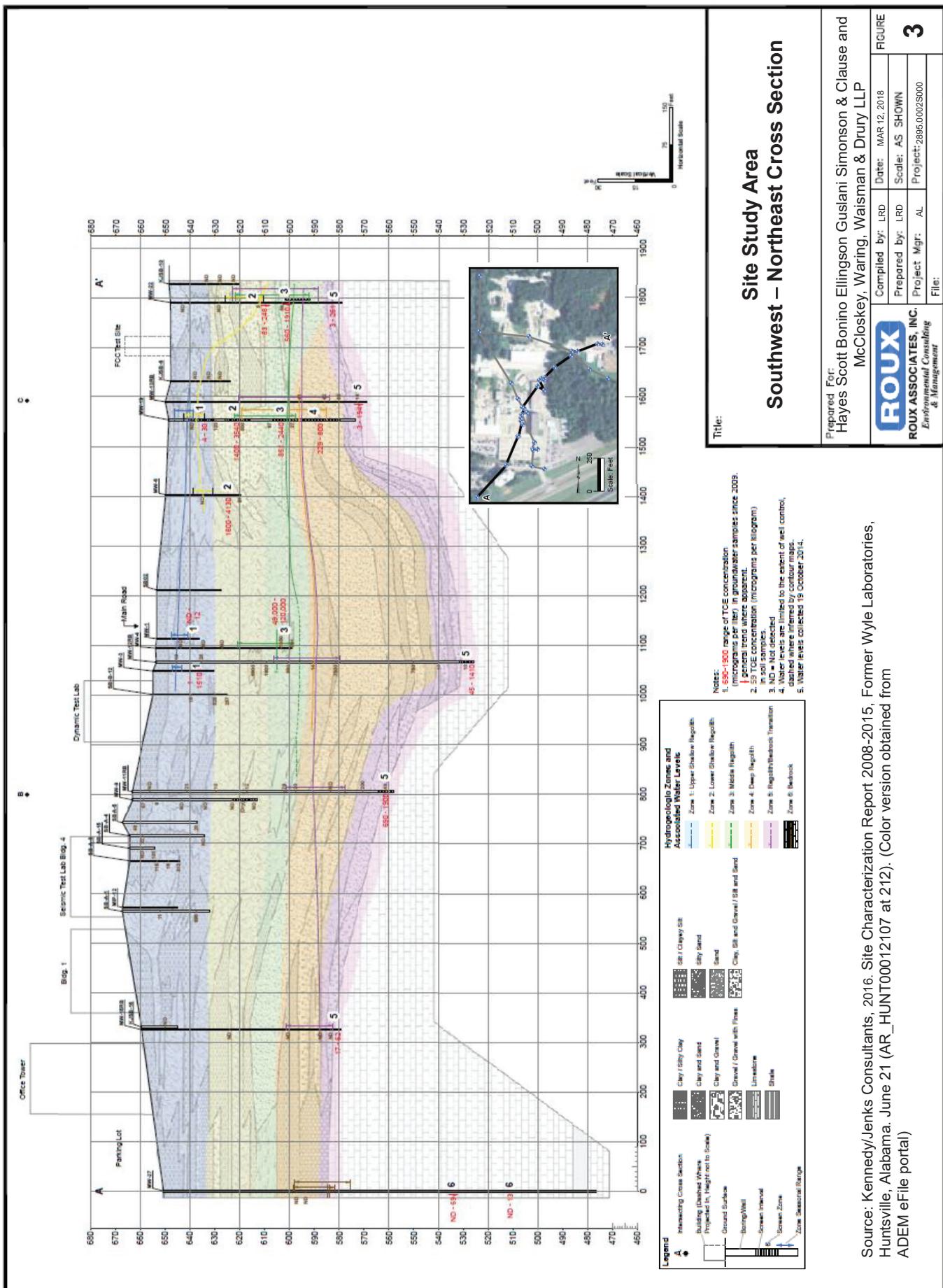
1,000 0 1,000 2,000
Feet

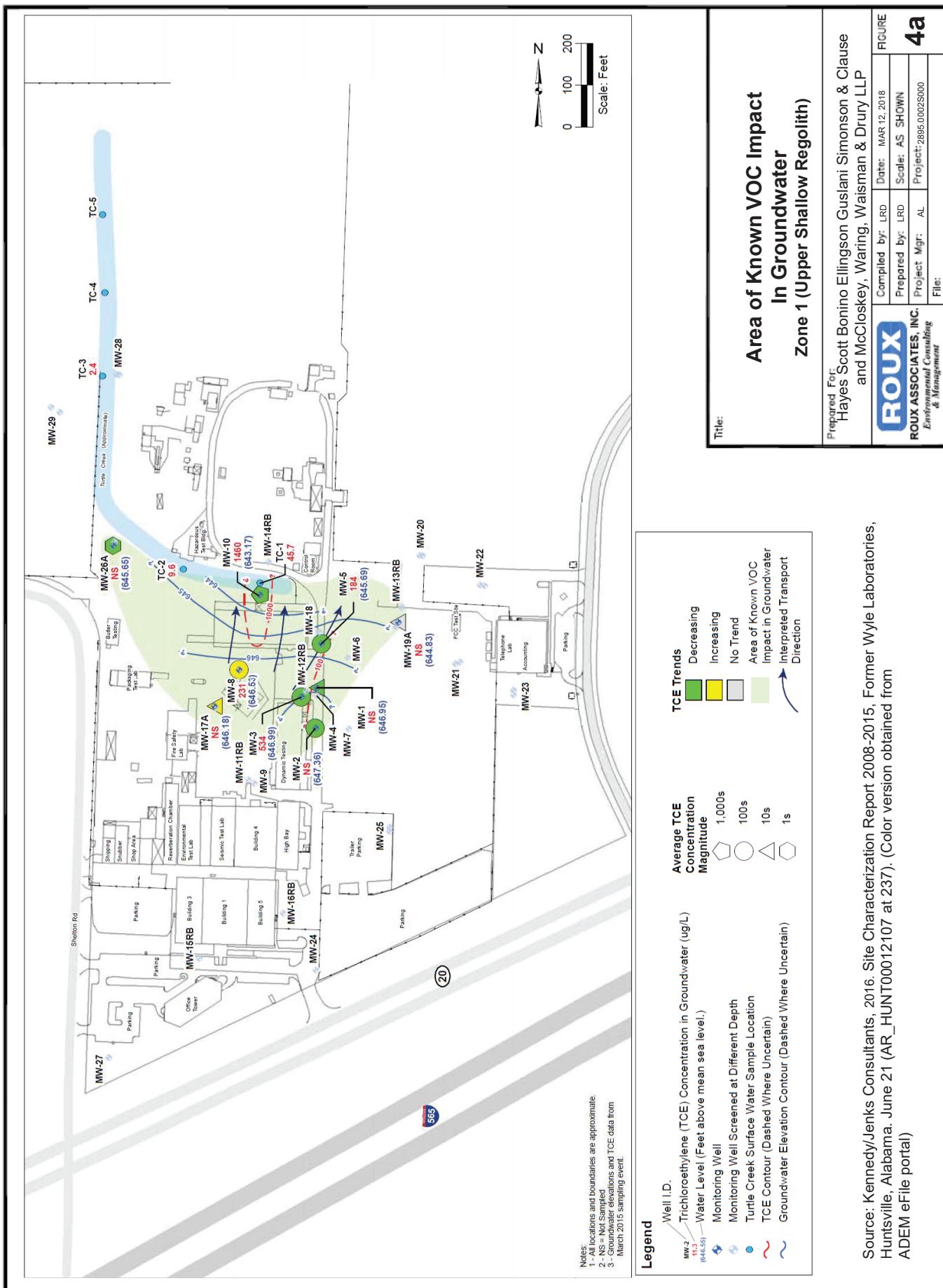
Site Vicinity Map

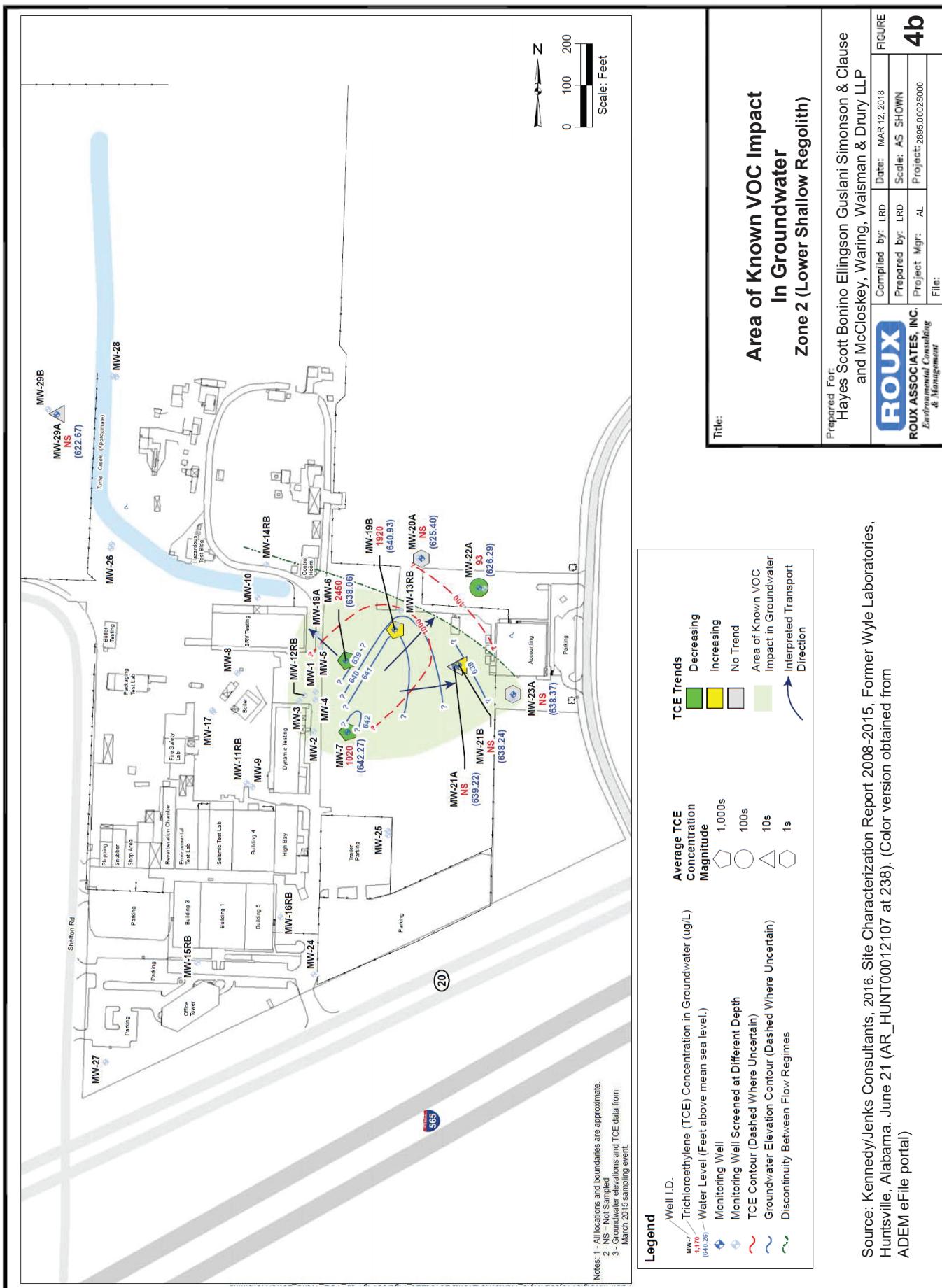
Prepared For:	
Hayes Scott Bonino Ellingson Guslani Simonson & Clause and McCloskey, Waring, Waisman & Drury LLP	
ROUX ROUX ASSOCIATES, INC. Environmental Consulting & Management	
Compiled by: LRD	Date: MARCH 12, 2018
Prepared by: UP	Scale: AS SHOWN
Project Mgr: AL	Project: 2895.0002S000
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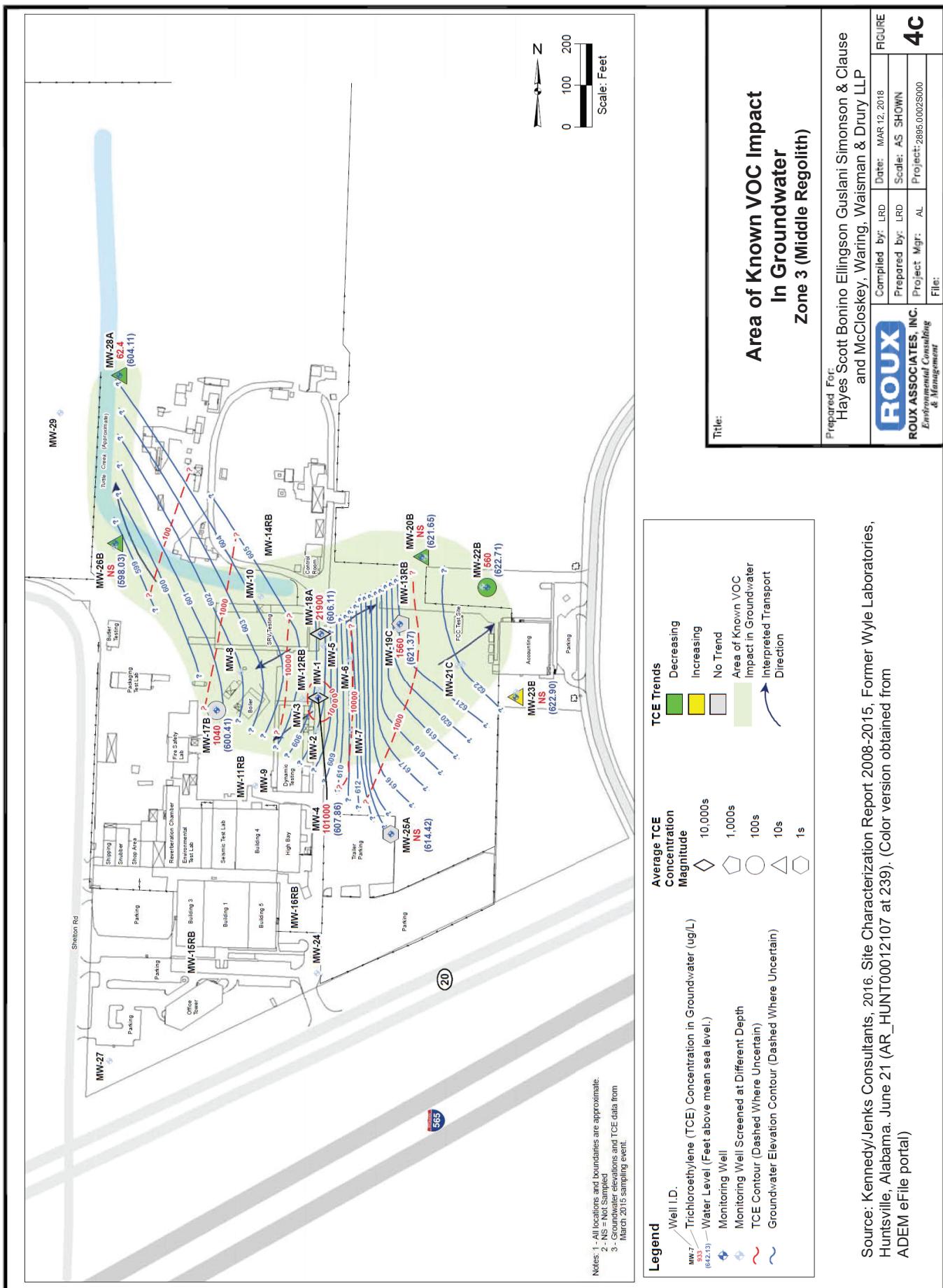
FIGURE 1

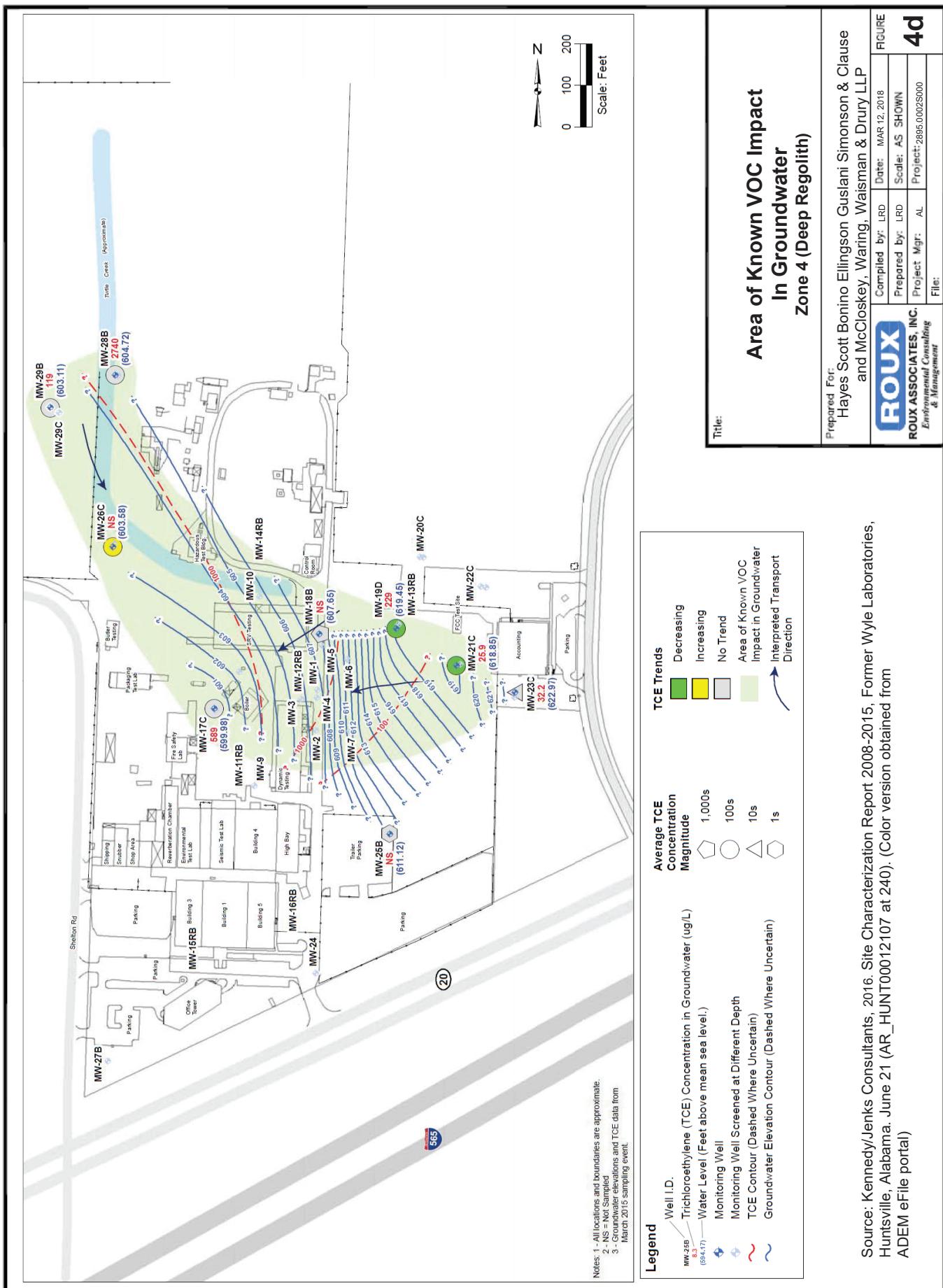












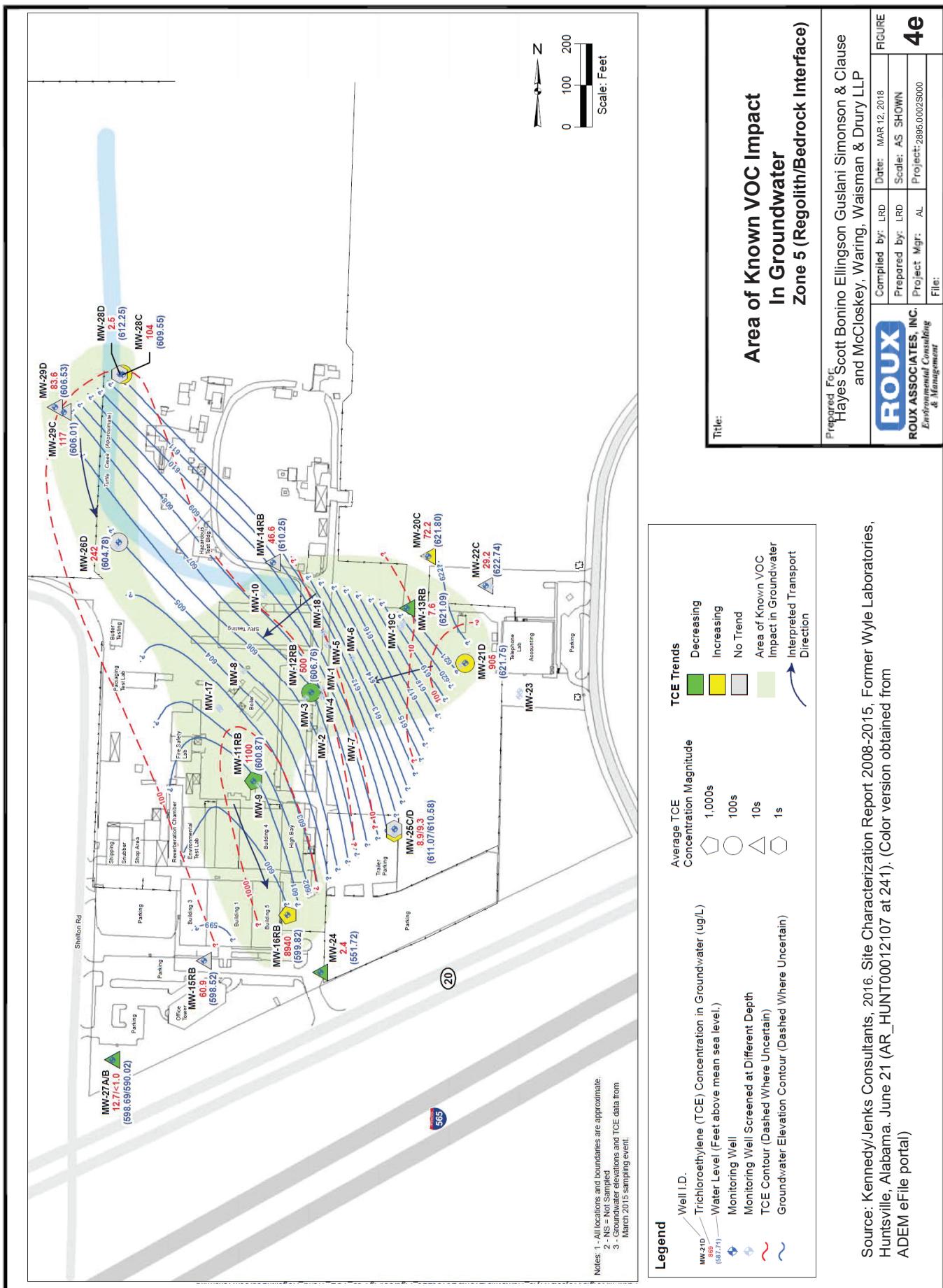


Exhibit A

CV of Adam H. Love Ph.D.

TECHNICAL SPECIALTIES

Dr. Love leads Roux's Litigation Practice Group and provides forensic litigation support and expert witness services to clients throughout the United States on environmental litigation, environmental insurance coverage, and toxic tort related matters. Dr. Love's experience includes strategic and technical analysis and guidance regarding numerous complex groundwater, soil, sediment, soil vapor and air contaminated sites. He has also provided expert technical guidance for state legislative actions and federal advisory panels on a range of traditional and non-traditional environmental hazards. Dr. Love's expertise has been developed through a unique variety of University, Federal and post-academia work.

Dr. Love's areas of expertise include:

- Environmental forensics (identifying sources and timing of chemical releases);
- Chemical/isotopic fingerprinting;
- Contaminant transport/fate in sediments, soils, water, groundwater, and air;
- Divisibility and apportionment of contamination among PRPs;
- Human (i.e. Toxic tort claims and Prop 65) and ecological exposure assessment;
- Assessments of petroleum (crude oil, diesel, and gasoline), chlorinated and other solvents (PCE, TCE, TCA, 1,4-dioxane), pesticides, PCBs, PAHs, radionuclides, explosives and heavy metals;
- Assessments of potential risks posed by emerging contaminants;
- Environmental site characterization and remediation; and,
- Environmental data analysis.

Dr. Love's capabilities include the use of advanced models and analytic methods to understand and interpret contaminant characterization, transport, and fate for a range of applications. By employing multiple lines of scientific evidence through analyses that couple field measurements, fate and transport calculations, and historical operations/documents, he provides internally consistent opinions and results. Dr. Love is experienced at creating and evaluating Site Conceptual Models based on an understanding of environmental and engineered systems that involve a wide range of matrices (i.e. soils, sorbents, air, natural waters, constructed materials, and biological tissue).

CREDENTIALES

Post Doctorate, Forensic Science Center, Lawrence Livermore National Laboratory, 2004;
 Ph.D., Environmental Engineering, University of California at Berkeley, Berkeley, CA, 2002;
 M.S., Material Science and Mineral Engineering - Hydrogeology, University of California at Berkeley, Berkeley, CA, 1998; and,
 B.A., Geoscience, Franklin & Marshall College, Lancaster, PA, 1996.

EXPERIENCE SUMMARY

20+ years of experience in environmental science/engineering, use of forensic signatures to determine source and timing of contamination, and contaminant assessment, transport and remediation.

- Roux Associates, Inc., Director, 2020-Present; Vice President, Litigation Practice Group Leader 2016-Present; Principal Scientist, 2013-Present.
- Johnson Wright Inc., Principal Scientist, Environmental Forensics Practice Leader 2009-2013.
- Lawrence Livermore National Laboratory, Principal Investigator/Scientist, Forensic Science Center, 2002-2009.
- California Department of Health Services – Drinking Water Program/Technical Programs Branch, Standards and Technology Unit Staff, 2000-2002.
- University of California, Berkeley, Graduate Student Researcher/Instructor, 1996-2002.
- Franklin & Marshall College, Undergraduate Researcher/Laboratory Teaching Assistant, 1994-1996.

EXAMPLE PROJECTS**Sediment Contamination Reconstruction**

Fox River Superfund Site, WI – Expert Witness. Prepared an Expert Report evaluating the technical bases for a range of methodologies used to allocate contribution of polychlorinated biphenyls (PCB) to contaminated sediments. Performed fate and transport analyses as the basis for allocation to estimate mass contributions from various PRPs.

Kalamazoo River Superfund Site, MI – Evaluated the annual total suspended solid (TSS) discharges from 14 facilities to the Kalamazoo River sediments over the 25+ year relevant period of applicable discharges. Allocated TSS discharges to generator facility when secondary facility was used for wastewater treatment. Evaluated changes in facility TSS treatment efficiency and relative TSS contributions throughout the relevant period.

Passaic River (Diamond Alkali) Superfund Site, NJ – Expert Witness. Evaluated available historical data, performed fate and transport analyses, and developed a detailed understanding of facility operations to support the facility designation of *de minimis* status.

Gowanus Canal Superfund Site, NY – Expert Witness. Evaluated available historical data, performed fate and transport analyses, and developed a detailed understanding of facility operations to support the facility designation of *de minimis* status.

San Diego Harbor, CA – Expert Witness. Evaluated available historical data, performed fate and transport analyses, and developed a detailed understanding of facility operations to support an Expert Report that evaluated potential metals, PCBs, and petroleum releases from the Silvergate Power Plant.

San Francisco Bay, CA – Collected sediment cores from Naval Air Station Alameda and performed isotopic and chemical analyses that enabled reconstruction of historical sediment contamination.

Industrial

Manufacturing Facilities, CA – Provided litigation support based on fate and transport analysis related to timing of groundwater contamination resulting from multiple potential PCE, TCE, TCA and 1,4-dioxane releases to groundwater managed by Orange County Water District. Additional chemical fingerprinting analysis was performed to distinguish on-site versus off-site contributions of chlorinated solvents and their degradation products to the associated groundwater plumes.

Industrial Facility, AZ – *Expert Witness*. Provided litigation support based on fate and transport analysis related to source and timing of groundwater contamination resulting from potential PCE, TCE, and TCA sources.

Former Military Facility, CA – *Expert Witness*. Evaluated claimed cleanup actions and costs related to site investigation and remediation of a former military site.

Former Military Facility, KS – *Expert Witness*. Evaluated claimed cleanup actions and costs related to site investigation and remediation of a former military site.

Aerospace Facility, CA – *Expert Witness*. Evaluated available historical data, performed fate and transport analyses, and developed a detailed understanding of facility operations that provide the technical basis for assessing contribution of PCE, TCE, and TCA from various operations.

Transportation Spill, CA – *Expert Witness*. Prepared an Expert Report evaluating the potential ecological impact of an ink spill into a local river.

Former Military Facility, CA – Performed site investigation of soil and groundwater at a former military site to determine the extent and magnitude of historical solvents and petroleum releases in order to inform remedial strategy. Obtained regulatory closure under low-threat closure criteria.

Drycleaners

Pleasanton, CA – Evaluated site conditions and advised on investigation and remediation strategy. Developed conceptual site model. Developed strategy for regulatory interactions.

Santa Barbara, CA – *Expert Witness*. Prepared an Expert Report assessing sources of PCE contamination to soil and groundwater contamination, including drycleaner discharges into sewer system and releases at adjacent sites. Rebuttal Expert Report also assessed the expected remedial costs for PCE contamination at and emanating from the site.

San Jose, CA – *Expert Witness*. Prepared an Expert Declaration regarding the potential sources of PCE contamination to soil and groundwater contamination and the divisibility of the contamination from the potential sources.

Napa, CA – *Expert Witness*. Prepared an Expert Declaration regarding the potential sources of PCE contamination to soil and groundwater contamination.

Davis, CA – *Expert Witness*. Prepared an Expert Report regarding the potential sources of PCE contamination of groundwater.

Numerous Sites, USA – Evaluation of the source, timing, and/or contribution from multiple PRPs to comingled PCE plumes from drycleaner sites related to environmental insurance claims.

Per- and Polyfluorinated Alkyl Substances (PFAS)

AFFF PFAS Forensics – Evaluated spectrum of AFFF formulations to identify unique forensic signatures of source and timing of AFFF releases and relative contributions.

Groundwater Plumes, NY – Sampled and evaluated impacts at multiple industrial sites to determine the source(s), extent and magnitude of PFAS concentrations in groundwater.

Wastewater Effluent, NJ – Evaluated PFAS chemicals in wastewater effluent in order to assess sources and relative contributions of PFAS discharges.

Military Base Soil/Groundwater Impacts, CA – Evaluated extent and magnitude of PFAS impacts for in AFFF training area and remedies that are protective of human and ecological exposure endpoints.

Heavy Metals

Battery Recycling Facility, CA – *Expert Witness*. Evaluated available historical emissions/capacity data, performed fate and transport analyses, and assessed the extent and magnitude of lead and other heavy metals contamination in soils surrounding the Exide Technologies lead battery recycling facility. Worked together with lead regulatory agency to develop interior/exterior assessment and remediation protocols. Analyzed reported results of community blood lead data.

Steel Manufacturing Facility, CA – *Expert Witness*. Evaluated available historical operations, soil lead and arsenic data, and chemical signatures of steel manufacturing from soils within and adjacent to the historic steel manufacturing facility.

Facility and Regulatory Assessments of Hexavalent Chromium, CA – Evaluated how changes in regulatory rules and enforcement would impact facilities in Los Angeles County. Created inventory of facilities in LA County that emitted hexavalent chromium. Evaluated alternative technology to using hexavalent chromium for metal plating.

GIS Database of Potential Hexavalent Chromium Sources, CA – Using knowledge of industrial processes combined with industrial compliance and reporting documentation, developed a GIS database of potential hexavalent sources for a Southern California county.

Naturally-Occurring Hexavalent Chromium in Drinking Water, CA – *Expert Witness*. Assessed potential industrial sources

and naturally-occurring sources of hexavalent chromium to a municipal drinking water distribution system.

Hexavalent Chromium Air Emissions from a Metal Plating Facility, CA – Expert Witness. Modeled hexavalent chromium emissions from multiple sources of hexavalent chromium in an industrial area, including a metal-plating facility. Model was calibrated and validated using actual air sampling data. Determined the extent and magnitude of emissions target facility and the relative contribution compared to other nearby sources.

Metal Recycling Facility, CA – Assessed facility compliance with DTSC hazardous waste regulations. Negotiated with DTSC on behalf of client. Developed plan for hazardous waste treatment/disposal that meets DTSC requirements.

Mixed Industrial Region, IN – Evaluated historical operations, soil lead and arsenic data, and chemical signatures of potential industrial sources with locations on and adjacent to the historic industrial manufacturing facilities.

Metal Plating Facility, IN – Expert Witness. Prepared an Expert Report regarding the evaluation of a claimed environmental release and associated costs that occurred during an electrical fire at a metal plating facility.

Metal Plating Facility, CA – Expert Witness. Prepared an Expert Declaration regarding the evaluation of the various former site operations that potentially contributed site contamination.

Mineral Processing Facility, CA – Expert Witness. Prepared an Expert Report regarding the contribution of an accidental elemental mercury spill at the Searles Valley Minerals Operations Inc. site to the overall historic site contamination. Analyzed invoices and categorized cleanup costs into emergency spill costs vs. soil remediation activities.

Petroleum

Petroleum Transfer Facility, CA – Expert Witness. Prepared an Expert Report assessing the release of gasoline, diesel fuel, and crude oil over 50+ years into the soil and sediment of Avila Beach, CA. Identified the source and timing of the historical contamination and the nature of the releases using multiple lines of scientific forensic techniques. Performed fate, transport and degradation analysis of gasoline, diesel fuel, and crude oil to determine the divisibility of “sudden and accidental” releases from frequent releases related to facility operations.

Pipeline Release, CA – Expert Witness. Performed technical evaluation of historical operations, extent and magnitude of impacts, and fate and transport pathways to develop model for an allocation of contribution among multiple pipeline companies, sewer operator, and oil recycling facility.

Pipeline Release, OK – Expert Witness. Performed technical evaluation of extent and magnitude of impacts, fate and transport pathways, and bioremediation potential.

Documented site cleanup activities were consistent with State of Oklahoma’s process for regulatory closure..

Retail Gasoline Stations, CO – Expert Witness. Performed fate, transport and degradation analysis of gasoline to determine the timing of gasoline releases. Prepared an Expert Report regarding the release of gasoline from 80+ fueling facilities throughout the state.

Crude Oil Refinery, CA – Expert Witness. Performed evaluation of timing of release and source of contamination related to historical refinery operations.

Used Oil System Collection and Recycling, CA – Expert Witness. Developed a report for the State of California on how to improve the state’s used oil recycling program. Provided testimony to CA State legislature on proposed used oil recycling incentive bills. Key technical contributor to stakeholder discussion on ongoing CalRecycle efforts for additional used oil recycling improvement.

Retail Gasoline Station, MD – Expert Witness. Performed evaluation of timing of release and source of contamination impacting nearby groundwater. Evaluated contaminant contributions from adjacent property and both current and former owner/operator.

Underground Fuel Oil Tank, NY – Expert Witness. Performed evaluation of timing of release and source of contamination for fuel oil impacting groundwater.

Long Island Sound, NY – Expert Witness. Evaluated if the released liquid was an oil, as per Oil Pollution Act of 1990 (OPA 90).

Timing of Petroleum Release, Numerous States – Performed fate, transport and degradation analysis of gasoline and fuel oil to determine the timing of releases at 200+ gasoline station and fuel oil sites related to environmental insurance claims.

Landfills

Groundwater solvent plume, CA – Expert Witness. Evaluated the available operation information, site investigation data, and performed fate and transport analysis to determine the source, timing, and number of release events at landfill operating for over 50 years.

Multi-COC Contamination, NJ – Evaluated the available operation information, site investigation data, and performed fate and transport analysis to determine the divisibility of the COC contamination among PRPs.

Multi-COC Contamination, WA – Evaluated the available operation information, site investigation data, and performed fate and transport analysis to determine the divisibility of the COC contamination among PRPs.

Radionuclides

Radionuclide-containing Products Manufacturing, PA – Expert Witness. Evaluated available historical data, performed fate and transport analyses, and developed a detailed understanding of facility operations at the Safety Light Superfund Site that provided the technical basis for recommendations to DOJ on a feasible strategy for and

potential allocation of arranger liability. Site contaminated with numerous radionuclides (tritium [H-3], strontium [Sr-90], cesium [Cs-137], and radium [Ra-226]).

Release of Radionuclides from Testing Equipment, OK – Evaluated whether the response actions taken were reasonable and necessary related to the investigation and remediation of a cesium [Cs-137] release.

Radionuclide Labeling Facility, CA – Sampled tree rings in the vicinity of a Lawrence Berkeley National Laboratory stack that emitted tritium [H-3] and analyzed tree rings in order to reconstruct facility emission for >50 years.

Pesticides

Atrazine, Numerous locations in USA – Provided expert litigation support regarding the fate and transport of atrazine, timing of release, and potential impacts to drinking water sources.

Glyphosate, Oakland, CA – Provided deposition and trial testimony regarding the source of glyphosate contamination causing property damage on an adjacent parcel of land based on atmospheric transport, technology dispersal capability, site conditions, and impact patterns on parcel.

Trichloropropane (1,2,3-TCP), CA – Evaluated potential sources of trichloropropane groundwater contamination in drinking water wells.

Human Exposure Assessment

Chemical Vapor Exposure, WA – Expert Witness. Evaluated the source of chemical vapors and the potential for downwind vapor exposure to workers.

School District Astroturf, CA – Collected astroturf samples and conducted consumer product testing to provide data which supported the assessment of potential exposure pathways and human health risk assessment for children, workers, and recreational users.

Caustic Liquid Exposure, MI – Evaluated potential sources of caustic chemical liquids that resulted in worker skin burns.

Proposition 65 Phthalates, CA – Collected consumer product samples and conducted consumer product testing to determine potential consumer exposure pathways and magnitude.

Proposition 65 Heavy Metals, CA – Evaluated lead data and developed a testing and evaluation plan to determine levels of naturally occurring metals in identified food products.

Explosive and Fire Assessment

Forensic Explosive Evaluation, CA – Expert Witness. Collected field samples and evaluated chemical and operational information to determine the likely cause of an explosion event at an industrial facility.

Forensic Deflagration Evaluation, CA – Expert Witness. Evaluated field reports, inventory, and operational information to determine the likely contributing causes of

a deflagration event that occurred in a transportation vehicle.

ADDITIONAL AREAS OF EXPERTISE AND EXPERIENCE

Weapons of Mass Destruction Preparation and Response

Provide technical guidance and operational plan reviews for responding to WMD events. Technical guidance includes emergency response, site characterization, WMD forensics, site remediation, fate and transport, site closure. Co-led team in development of DHS/EPA Federal facility restoration guidance document for critical infrastructure.

Development of Chemical/Isotopic Signatures / Fingerprints

Develop and validate new chemical/isotopic fingerprint strategies as well as utilize peer-reviewed techniques. Experienced with numerous approaches: intended chemical markers and additives, chemical component ratios, degradation analysis, isotope analysis, biomarkers, isomers/congener analysis.

Chemical Fate and Transport Modeling

Conducts analyses using a variety of industry-accepted approaches, including analytic solutions and numerical models MODFLOW, MT3D, HYDRUS, BIOCHLOR, CAMEO/ALOHA, CALPUFF, HPAC. Determines aqueous and/or atmospheric plume migration exposure duration and magnitude.

JOURNAL PUBLICATIONS

Environmental Forensics

Ram, N.M.; Schneider, M.W.; Gerbig, C.A., Nevens, N.; Love, A.H. (2019) Allocating Cleanup Costs Among Potentially Responsible Parties. *Remediation*. 30:33-45.

Zdon, A.; Rainville, K.; Buckmaster, N.; Parmenter, S.; Love, A.H. (2019) Identification of Source Water Mixing in the Fish Slough Spring Complex, Mono County, California, USA. *Hydrology*. 6, 26.

Love, A.H. and Zdon, A. (2018) Use of Radiocarbon Ages to Narrow Groundwater Recharge Estimates in the Southeastern Mojave Desert, USA. *Hydrology*. 5(3):51.

Zdon, A.; Davisson, M.L.; Love, A.H. (2018) Understanding the source of water for selected springs within Mojave Trails National Monument, California. *Environmental Forensics*. 19(2), 99-111.

Dorrance, L.R.; Kellogg, S.; Love, A.H. (2017) What You Should Know About Per- and Polyfluoroalkyl Substances (PFAS) for Environmental Claims. *Environmental Claims Journal*, 29:4, 290-304.

Shelley, T.M.; Love, A.H. (2015) A Question of Proof: Using Isotope Analysis and Chemical Fingerprinting to Identify the Source of Contamination. *Environmental Claims Journal*, 27:3, 264-275.

Zdon, A.; Davisson, M.L.; Love, A.H. (2015) Testing the Established Hydrogeologic Model of Source Water to the Amargosa River Basin, Inyo and San Bernardino Counties, California. *Environmental Forensics*. 16(4).

Love, A.H., J.R. Hunt, J.P. Knezovich. (2004) Improving Tritium Exposure Reconstructions Using Accelerator

Mass Spectrometry. *Analytical and Bioanalytical Chemistry*. 379(2): 198-203.

Love, A.H., B.K. Esser, J.R. Hunt. (2003) Reconstructing Contaminant Deposition in a San Francisco Bay Marina. *Journal of Environmental Engineering*. 129 (7):659.

Love, A.H., J.R. Hunt, J.P. Knezovich. (2003) Use of Carbon-14 and Tritium in Tree Rings to Reconstruct Tritium Exposure at Lawrence Berkeley National Laboratory. *Environmental Science and Technology*. 37 (19): 4330.

Contaminant Fate and Transport

Kuo, I-Feng; Grant, C.; Gee, R.; Chinn, S.; Love, A.H. (2012) Determination of the Surface Effects on Sarin Degradation. *The Journal of Physical Chemistry C*. 116 (17), 9631-9635.

Love, A.H. (2008) Determining Important Parameters Related to Cyanobacterial Alkaloid Toxin Exposure. *Advances in Experimental Medicine and Biology*. Hudnall, H. Kenneth (Ed.). 619:453-464.

Loui, A., Ratto, T.V., Wilson, T.S., McCall, S.K., Mukerjee, E.V., Love, A.H., Hart, B.R. (2008) Chemical vapor discrimination using a compact and low-power array of piezoresistive microcantilevers. *The Analyst*. 133(5): 608 – 615.

Love, A.H., M.L. Hanna, P.R. Coronado, J.G. Reynolds (2005) Engineering surface functions groups on silica aerogel for enhanced cleanup of organics from produced water. *Separation Science*. 40:311-320.

Love, A.H., Vance, A.L., Reynolds, J.G., Davisson, M.L. (2004) Investigating the affinities and persistence of VX nerve agent in environmental matrices. *Chemosphere*. 57: 1257-1264.

Weapons of Mass Destruction Preparation and Response

Campbell, C.G.; Kirvel, R.D.; Love, A.H.; Raber, E. (2012) Decontamination After a Release of B. anthracis Spores. *Biosecurity and bioterrorism: biodefense strategy, practice, and science* 10(1):108-22.

Love, A.H.; Bailey, C.G.; Hanna, M.L.; Hok, S.; Vu, A.K.; Reutter, D.J.; Raber, E. (2011) Efficacy of Liquid and Foam Decontamination Techniques for Chemical Warfare Agents on Indoor Surfaces. *J. Hazardous Materials*. 196; 115-122.

Watson, A; Hall, L; Raber, E; Hauschild, V.D.; Dolislagerd, F.; Love, A.H.; Hanna, M.L. (2011) Developing Health-Based Pre-Planning Clearance Goals for Airport Remediation Following Chemical Terrorist Attack: Introduction and Key Assessment Considerations. *Human and Ecological Risk Assessment: An International Journal*, 17(1): 2 – 56.

Watson, A; Dolislagerd, F.; Raber, E; Hall, L; Hauschild, V.D.; Love, A.H. (2011) Developing Health-Based Pre-Planning Clearance Goals for Airport Remediation Following a Chemical Terrorist Attack: Decision Criteria for Multipathway Exposure Routes.

Human and Ecological Risk Assessment: An International Journal, 17(1) : 57 – 121.

Campbell C.J., Love A.H. (2008) Monitoring Water Resources for Threats to Water Security. *New Topics in Water Resources Research and Management*. Henrik M. Andreassen (Ed.). Nova Science Publishers, Inc. pp. 195-235.

Ramkumar, S.; Love, A.H.; Sata, U.R.; Kendall, R.J. (2008) Next-Generation Nonparticulate Dry Nonwoven Pad for Chemical Warfare Agent Decontamination. *Ind. Eng. Chem. Res*. 47: 9889-9895.

Other Publications

Boston, C; Love, A.H. (2018) Understanding the Uncertainty with Unregulated Contaminants. American Bar Association. Environmental & Energy Litigation Committee Newsletter. Spring 2018. 2(3):9-16.

Baumann, J.; Oliver, D.H.; Dorrance, L.R; Love, A.H. (2018): Approaches to Reduce Conflict when Insuring the Environmental Cleanup of Closed Military Bases Intended for Redevelopment, *Environmental Claims Journal*

M.R. Johnson, J.G. Reynolds, Love, A.H. (2008) Improving Used Oil Recycling in California. *Contractor Report to the California Integrated Waste Management Board*. California Environmental Protection Agency. May 2008. Publication #610-08-008.

Vogel, J.; Love, A.H. (2005) Quantitating Isotopic Molecular Labels with Accelerator Mass Spectrometry. *Methods in Enzymology* 402:402-22.

Chiarappa-Zucca, M.L.; Dingley, K.H.; Roberts, M.L.; Love, A.H. (2002) Sample Preparation for Quantitation of Tritium by Accelerator Mass Spectrometry. *Analytical Chemistry* 74(24):6285-90.

Roberts, M.L.; Hamm, R.W.; Dingley, K.H.; Love, A.H. (2000) A compact tritium AMS system. *Nuclear Instruments and Methods in Physics Research Section B Beam Interactions with Materials and Atoms* 172(1-4):262-267.

SELECTED CONFERENCE PRESENTATIONS

Environmental Forensics

Dorrance, L.; Love, A.H.; (2018) Rewind the Clock: Use of Environmental Forensics to Investigate Timing of Release. AEHS 29th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2019.

Dorrance, L.; Love, A.H.; (2018) Outlook of Environmental Forensics in Distinguishing Sources of Perfluoroalkyl and Polyfluoroalkyl Substances. Emerging Contaminants Summit 2018. March 2018

Dorrance, L.; Love, A.H.; (2018) Metals Forensics at Ghost Factories. AEHS 28th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2018

Love, A.H.; Dorrance, L. (2017) Current Limitations and Outlook of Environmental Forensics for PFOS, PFOA and Related Perfluoroalkyl and Polyfluoroalkyl Substances. AEHS 27th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2017.

Love, A.H.; Dorrance, L. (2016) Lessons in Applying Forensic Techniques to Sediment Sites Throughout the US. AEHS 26th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2016.

Love, A.H.; Zdon, A. (2015) Assessing Limited Water Resources Forensics. AEHS 25th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2015.

Love, A.H., Brown, C. (2014) Robust Data Analysis for Utilizing Chemical Data for Forensic Applications. AEHS 24th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2014.

Love, A.H. (2014) Incorporating Environmental Lines of Evidence into Nuclear & Criminal Forensics. Conference on Application of Accelerators in Research and Industry (CAARI). May 2014

Shelley, T.M., Love, A.H. (2014) Prove it! – Using Isotope Analysis to Prove Contamination Source. FETTI Conference. October 2014.

Love, A.H. (2013) Using 1,4 Dioxane as a Forensic Tool at Solvent Sites. AEHS 23th Annual International Conference on Soil, Water, Energy, and Air, Forensics Section. March 2013.

Love, A.H. (2013) Testing the Established Regional Hydrologic Conceptual Model in the Amargosa River Basin, California and Nevada. National and International Conference on Groundwater. April 2013.

Contaminant Fate and Transport

Cunningham, A.B.; Hogan, J.P.; Love, A.H.; Munk, I.M. (2019) PFAS Environmental Risks - What are People Actually Doing? Environmental Risk & Litigation Conference. June 18, 2019.

Love, A.H.; Newman, R.G.; Kinslow, C.J.; Vaughn, K. (2018) PFAS: Evolution from Emerging Contaminant to Frequent Headliner. Environmental Risk & Litigation Conference. June 12, 2018.

Love, A.H.; Smith, S.E.; Slaughter, J.B.; Connor, P.; Scarella, M. (2017) Defending Lead Cases: Strategies and Tactics for a Trending Toxic Tort. DRI Webinar. October 28, 2017.

Love, A.H.; Hunter, C.; London, M.A.; Swetman, M. (2017) Perfluorinated Chemicals - The Science and Law Behind PFOA. Environmental Risk & Litigation Conference. June 20, 2017.

Love, A.H.; Smith, S.E.; Connor, P.; Scarella, M.; Kelso, P. Get the Lead out! Proactive Risk Measures in

Response to America's Environmental Crisis. 2017 EECMA Conference. April 2017.

Edlin, N.; Love, A.H. (2016) Did Law Kill Science? Understanding the Impact of Davis v. Honeywell and the "One Fiber Theory" on Asbestos and Environmental Cases. FETTI Conference. September 2016.

Love, A.H., (2010) Understanding Agent Fate Systems: Is the perfect the enemy of the good? The 2010 Chemical and Biological Defense Science and Technology Conference. Orlando, Florida. 15-19 November 2010.

Love, A.H., Koester, C.J., Alcaraz, A., Hanna, M.L., Ho, P., Reynolds, J.G., Raber, E. (2007) "Determining CWA Environmental Fate to Optimize Remediation for Indoor Facilities." 2007 EPA Decontamination Workshop. Durham, North Carolina, June 20-22, 2007.

Love, A.H., Koester, C.J., Alcaraz, A., Hanna, M.L., Ho, P., Reynolds, J.G., Raber, E. (2007) "Determining CWA Environmental Fate to Optimize Remediation for Indoor Facilities." 6th DHS Conference on Chemical and Biological Technologies: Food Protection, Restoration, and Architecture Studies. Madison Wisconsin, June 5-8, 2007.

Love, A.H. (2006) "Radiologic Dispersal Devices: Enhancing Response Capability" LLNL Educational Outreach to DTRA CB Defense. August 31, 2006. Fort Belvoir, Virginia.

Love, A.H. (2005) Determining Important Parameters Related to Cyanobacterial Alkaloid Toxin Exposure. International Symposium on Cyanobacterial Harmful Algal Blooms (ISOC-HAB). U.S. Environmental Protection Agency. Durham, North Carolina. Sept 6-8, 2005.

Love, A.H., Davisson, M.L., Vance, A.L., Reynolds, J.G. (2005) Understanding the Interaction of Chemical Agents with Environmental Matrices at Low Levels. Working Together: R&D Partnerships in Homeland Security. April 2005. Boston, Massachusetts.

Weapons of Mass Destruction Preparation and Response

Love, A.H., Hanna, M.L., Hok, S., Smith, W.J., Vu, A.K., Reutter, D., Raber, E. (2010) Evaluating Strategies for CWA Decontamination of Indoor Facilities. 2010 US EPA Decontamination Research and Development Conference. Research Triangle Park, North Carolina. April 13-15, 2010.

Glascoe, L., Alai, M., Love, A.H., Johnson, M., Einfeld, W. (2005) A Technology Acquisition Strategy for the Security of Water Distribution Networks. AWWA Water Security Congress. Oklahoma City, OK. April 2005.

Site Investigation and Remediation

Love, A.H.; Sullivan, C.N.; Alviggi, C. (2018) What, me worry? Environmental Reopeners. DRI Toxic Tort and Environmental Seminar. March 2018.

Nuti, P., Love, A.H. (2010) Navigating the Complexities of Sediment Site Cleanup. 2010 EECMA Conference. May 2010.

Love, A.H.; Stevens, M.A.; Silver, L. (2012) The Anatomy of an Environmental Standard. 2012 EECMA Conference. May 2012.

Wozniak, A.A., Love, A.H. (2011) Optimizing Environmental Costs: Are Insureds Paying Too Much? 2011 EECMA Conference. May 2011.

Other Presentations

Love, A.H.; Brenneman, L.M.; Renfroe, T.J. (2019) Climate Change Vulnerability Assessment and Adaptation at Environmental Sites DRI Toxic Tort and Environmental Seminar. March 2019.

Love, A.H.; Singarella, P.; Tai, S.; Wiseman, H. (2018) Science on Trial: Is It Legally Honest? American Bar Association Section of Environmental, Energy, and Resources. 47th Spring Conference. April 20, 2018.

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

- Editorial Board - Journal of Environmental Forensics
- ABA Section of Litigation – Expert Witness Committee
- International Society of Environmental Forensics
- American Chemical Society (ACS), Member #2301067
- Forensic Expert Witness Association
- Bar Association of San Francisco
- DRI
- Organization for the Prohibition of Chemical Weapons (2013 Nobel Peace Prize Recipient), US Analysis Team at Lawrence Livermore National Laboratory, 2004-2009.

PATENTS

Systems and methods for generation of hydrogen peroxide vapor. United States Patent 08899556
Stabilizing Griess reagent for explosives detection. United States Application 20070065944

APPEARANCES AND EXPERT REPORTS

- The Board of Trustees of the Leland Stanford Junior University v. Agilent Technologies, Inc., and HP Inc. United States District Court, Northern District of California, San Francisco Division. Case No. 3:18-CV-01199 VC. Expert Report.
- Goldberg v. Goss-Jewett Company, Inc., et al., United States District Court, Central District of California. Case No. EDCV14-01872 DSF (AFMx). Deposition May 25, 2016; September 26, 2019. Expert Report. Rebuttal Report. Additional Rebuttal Report.
- David R. Hull, et al., v. JP Energy Marketing, LLC, et al. District Court of Love County, State of Oklahoma. Case No. CJ-2017-17. Expert Report
- City of West Sacramento, California, et al. v. R and L Business Management, et al., United States District Court, Eastern District of California. Case No. 2:18-CV-00900-WBS-EFB. Expert Declaration. Rebuttal Declaration.
- Von Duprin LLC v. Moran Electric Service, Inc. Major Holdings, LLC, Major Tool and Machine, Inc., and Zimmer Paper Products Incorporated. United States District Court Southern District of Indiana, Indianapolis Division. Case No. 1:16-CV-01942-TWP-DML. Trial July 31, 2019. Deposition June 7, 2018. Expert Report. Expert Declaration.
- King County, Washington v. Traveler's Indemnity Co., et al. United States District Court, Western District of Washington. Case No. 14-cv-1957. Deposition April 9, 2019. Rebuttal Report.
- Chemtronics Inc. v. Northrop Grumman Systems Corp. American Arbitration Association Arbitration. Case No. 01-17-0007-1884. Binding Arbitration November 12-13, 2018. Expert Report. Rebuttal Report. Supplemental Report.
- California River Watch v. City of Vacaville. United States District Court, Eastern District of California. Case No. 2:17-cv-00524-KJM-KJN. Expert Report. Expert Declaration.
- 220 W. Gutierrez, LLC v. Goss-Jewett & Co. Inc. et al. Santa Barbara County Superior Court. Case No. 17-CV-05689. Expert Declaration.
- Estate of Robert Renzel, Deceased et al. v. estate of Lupe Ventura, Deceased, et al. United States District Court, Northern District of California. Case No. 4:15-cv-1648-HSG. Deposition August 27, 2018. Expert Declaration. Expert Report. Rebuttal Report.
- Siltronic Corporation v. Employers Insurance Company of Wausau et al. United States District Court, Central District of Oregon. Case No. 3:11-cv-01493-BR. Deposition May 24, 2018. Expert Report.
- Arrow Electronics, Inc. v. Aetna Casualty & Surety Co., et al. United States District Court, Central District of California. Case No. 2:17-cv-05247-JFW-JEM. Expert Report. Rebuttal Report.

- Power Authority of the State of New York v. The tug M/V Ellen S. Bouchard, et al. United States District Court, Southern District of New York. Case No. 14-cv-4462 (PAC). Deposition May 30, 2018. Expert Report.
- Crown Central, LLC v. Petroleum Marketing Investment Group, LLC, et al. Circuit Court for Baltimore County, Maryland. Case No. 03-C-16-010774 CN. Deposition December 19, 2017. Expert Declaration. Rebuttal Declaration.
- Sunflower Redevelopment, LLC v. Illinois Union Insurance Company. United States District Court, Western District of Missouri, Western Division. Case No. 4:15-cv-00577-DGK. Deposition November 10, 2017. Rebuttal Report. Supplemental Report.
- Gary Puhr v. PQ Corporation. United States District Court, Northern District of Illinois, Eastern Division. Case No. 16-CV-00728. Expert Report.
- Insurance Company of the State of Pennsylvania v. County of San Bernardino. United States District Court, Central District of California. Case No. 5:16-cv-00128-PSG-SS. Deposition June 15, 2017. Expert Report. Rebuttal Report.
- Lennar Mare Island, LLC v. Steadfast Insurance Company. United States District Court, Eastern District of California, Sacramento Division. Case No. 2:12-cv-02182-KJM-KJN. Case No. 2:16-cv-00291-KJM-CKD860. Deposition May 26, 2017. Expert Report. Supplemental Report.
- Hanford Challenge, et al., v. Ernest Moniz, et al. United States District Court, Eastern District of Washington. Case No. 4:15-CV-05086-TOR. Expert Declaration. Supplemental Expert Declaration.
- K.C. Jones Plating Company, et al., v. Admiral Insurance Company. United States District Court, Eastern District of Michigan, Southern Division. Case No. 2:16-cv-10790-DML-MKM. Expert Report.
- 860 Kaiser, LLC v. Greene's Cleaners, Inc., Napa County Superior Court. Case No: 26-63995. Deposition January 11, 2016, September 12, 2016. September 26, 2016. Expert Declaration.
- Lewis v. Russell, United States District Court, Eastern District of California. Case No. CIV. S-03-02646 WBS AC. Deposition July 20, 2016. Expert Report. Rebuttal Report. Supplemental Report.
- 937 York Road, LLC, et al. v. Petroleum Marketing Group, Inc., et al., Circuit Court for Baltimore County, Maryland. Case No. 03-C-14-005988. Expert Declaration.
- State of Colorado, et al., v. Valero Energy Corporation, et al., District Court, City and County of Denver, Colorado. Expert Report. Rebuttal Report.
- Union Oil Consolidated Coverage Cases, Los Angeles Superior Court. Case No: BC 271474. Deposition November 20, 2014. Expert Report.



Adam H. Love, Ph.D.

Vice President/Principal Scientist, Litigation Practice Leader

- Donegan v. Stubblefield, Rene C. Davidson Alameda County Courthouse. RG12628426. Deposition July 26, 2013. Trial August 8, 2013.
- Searles Valley Minerals Operations Inc. v. Advanced Steel Recovery Inc., et al., California Ninth District. Central District Court. 5:2010cv01403. Deposition January 25, 2012. Expert Report. Rebuttal Report.

Exhibit B

Invoice Summary

Exhibit B - Invoice Summary

Invoice Number	Invoice Date	Role Assumed Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Doc#	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes	
0004290001	9/21/2000	1	NA	8/19/2000	Kennedy/Jenks	\$8,133.49	\$8,133.49	\$0.00	AR_HUN00009530	2000 KI Invoices AR_HUN00009530	General Site Inspection, Direct Expenses	8/3/2000 Meeting with ADEM to discuss site preparation of 10/31/2000 Characterization WP.	2000-09-21 KI Report of Historic Release AR_HUN100009578	
0004290002	11/20/2000	1	9/30/2000	10/27/2000	Kennedy/Jenks	\$9,201.63	\$9,201.63	\$0.00	AR_HUN00009532	2000 KI Invoices AR_HUN00009532	General	Preparation of 10/31/2000	2000-10-21 Characterization WP	
0004290003	12/27/2000	1	10/28/2000	11/24/2000	Kennedy/Jenks	\$4,845.42	\$4,845.42	\$0.00	AR_HUN00009534	2000 KI Invoices AR_HUN00009534	General	Barcode unknown, according to 2/27/01 Bimonthly Progress Report, all activities are based on 10/31/2000 WP.	2001-02-26 KI Bimonthly progress report AR_HUN1000026	
0004290004	1/30/2001	1	11/25/2000	12/23/2000	Kennedy/Jenks	\$9,062.38	\$9,062.38	\$0.00	AR_HUN00009538	2001 KI Invoices AR_HUN00009538	General	December 2000 Groundwater monitoring, soil sampling and geophysical investigation	2001-02-16 KI Bimonthly progress report AR_HUN1000026	
0004290005	2/27/2001	1	12/23/2000	1/15/2001	Kennedy/Jenks	\$22,190.19	\$22,190.19	\$0.00	AR_HUN00009540	2001 KI Invoices AR_HUN00009533	General and Direct Expenses	Direct expenses associated with Dec 2000 field work	2001-02-26 KI Bimonthly progress report AR_HUN1000026	
0004290006	3/26/2001	1	1/20/2001	2/16/2001	Kennedy/Jenks	\$8,398.16	\$8,398.16	\$0.00	AR_HUN00009562	2001 KI Invoices AR_HUN00009533	General and Direct Expenses	Bar tasks unknown, according to 2/26/01 Bimonthly Progress Report, all activities are based on 20/31/2000 WP.	2001-02-26 KI Bimonthly progress report AR_HUN1000026	
0004290007	4/23/2001	1	2/17/2001	3/30/2001	Kennedy/Jenks	\$17,526.91	\$17,526.91	\$0.00	AR_HUN00009564	2001 KI Invoices AR_HUN00009533	General and Direct Expenses	Preparation and submission of 2/26/01 Bimonthly Progress Report.	2001-02-26 KI Progress Rpt AR_HUN10009591	
0004290008	5/18/2001	1	3/31/2001	4/27/2001	Kennedy/Jenks	\$1,064.00	\$1,064.00	\$0.00	AR_HUN00009566	2001 KI Invoices AR_HUN00009533	General	Specific tasks unknown, but tasks are associated with the 10/31/2000 WP.	2001-02-26 KI Progress Rpt AR_HUN10009591	
0004290009	6/27/2001	1	4/29/2001	5/27/2001	Kennedy/Jenks	\$4,725.20	\$4,725.20	\$0.00	AR_HUN00009568	2001 KI Invoices AR_HUN00009533	General and Direct Expenses	Specific tasks unknown, but tasks are associated with the 10/31/2000 WP.	2001-02-26 KI Progress Rpt AR_HUN10009591	
0004290010	7/25/2001	1	5/26/2001	6/23/2001	Kennedy/Jenks	\$2,095.00	\$2,095.00	\$0.00	AR_HUN00009570	2001 KI Invoices AR_HUN00009533	General	Specific tasks unknown, but according to 7/26/01 Progress Report, all tasks are associated with the 10/31/2000 WP.	2001-02-26 KI Progress Rpt AR_HUN10009591	
0004290011*	NA	1	NA	NA	Kennedy/Jenks	\$4,024.78	\$4,024.78	\$0.00	NA	2001 KI Invoices AR_HUN00009533	NA	NA	NA	2001-02-26 KI Progress Rpt AR_HUN10009591
0004290012	9/14/2001	1	7/21/2001	8/31/2001	Kennedy/Jenks	\$1,789.07	\$1,789.07	\$0.00	AR_HUN00009572	2001 KI Invoices AR_HUN00009533	General, M (Word Processing) and Direct Expenses	Preparation of the 8/10/01 Q1 (September) 2000 GW Monitoring Report and 7/16/01 Progress Report.	2001-08-10 KI Q1 2000 GW Mon Rpt Transmittal sheet AR_HUN10009595	
0004290013	11/28/2001	1	9/1/2001	10/26/2001	Kennedy/Jenks	\$2,248.00	\$2,248.00	\$0.00	AR_HUN00009574	2001 KI Invoices AR_HUN00009533	General and N (Word Processing)	Preparation of 02/11/02 Geophysical Invst. Report and Char. Characterization WP.	2002-01-17 KI Progress Report AR_HUN10000040	
0004290014	12/14/2001	1	10/27/2001	11/29/2001	Kennedy/Jenks	\$3,374.45	\$3,374.45	\$0.00	AR_HUN00009576	2001 KI Invoices AR_HUN00009533	General, Site Inspection and Direct Expenses	Preparation of 02/11/02 Geophysical Invst. Report and Char. Characterization WP.	2002-01-17 KI Progress Report AR_HUN10000040	
0004290015	1/10/2002	1	11/24/2001	12/24/2001	Kennedy/Jenks	\$5,367.23	\$5,367.23	\$0.00	AR_HUN00009578	2002 KI Invoices AR_HUN00009533	General and Direct Expenses	Preparation of 02/11/02 Geophysical Invst. Report and Char. Characterization WP.	2002-01-17 KI Progress Report AR_HUN10000040	
0004290016	2/12/2002	1	12/23/2001	1/18/2002	Kennedy/Jenks	\$5,019.34	\$5,019.34	\$0.00	AR_HUN00009580	2002 KI Invoices AR_HUN00009533	General and Direct Expenses	Preparation of 02/11/02 Geophysical Invst. Report and Char. Characterization WP.	2002-01-17 KI Progress Report AR_HUN10000040	
0004290017	3/13/2002	1	1/19/2002	2/19/2002	Kennedy/Jenks	\$2,387.59	\$2,387.59	\$0.00	AR_HUN00009582	2002 KI Invoices AR_HUN00009533	General and Direct Expenses	Preparation of the 2/27/02 Nov 2000 GW Monitoring Report.	2002-02-21 KI Q1 2001 GW Mon Rpt Transmittal sheet AR_HUN10009599	
0004290018	4/16/2002	1	2/16/2002	3/29/2002	Kennedy/Jenks	\$542.48	\$542.48	\$0.00	AR_HUN00009584	2002 KI Invoices AR_HUN00009533	General and Direct Expenses	Specific tasks unknown, but certain GW monitoring work.	2002-02-21 KI Q1 2001 GW Mon Rpt Transmittal sheet AR_HUN10009599	
0004290019	5/9/2002	1	3/30/2002	4/26/2002	Kennedy/Jenks	\$2,084.39	\$2,084.39	\$0.00	AR_HUN00009586	2002 KI Invoices AR_HUN00009533	General and Direct Expenses	Preparation of 02/11/02 Geophysical Invst. Report and Char. Characterization WP.	2002-02-21 KI Q1 2001 GW Mon Rpt Transmittal sheet AR_HUN10009599	
0004290020	6/10/2002	1	4/27/2002	5/27/2002	Kennedy/Jenks	\$9,715.52	\$9,715.52	\$0.00	AR_HUN00009588	2002 KI Invoices AR_HUN00009533	General, Site Inspection and Direct Expenses	Preparation for June and July 2002 field work.	2002-02-21 KI Geophysical Invst. Report and Char. Characterization WP.	
0004290021	7/17/2002	1	5/25/2002	6/23/2002	Kennedy/Jenks	\$53,068.05	\$53,068.05	\$0.00	AR_HUN00009590	2002 KI Invoices AR_HUN00009533	General and Direct Expenses	Initiation of review of GW monitoring wells and advancement of six boreholes.	2002-02-25 KI Geophysical Invst. Report and Char. Characterization WP.	
													2002-02-29 KI Status Report AR_HUN10000043 AR_HUN10000247	

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004290022	8/22/2002	1	6/22/2002	7/19/2002	Kennedy/Jenks	\$18,114.67	\$18,114.67	\$0.00	AR_HUN0009592	2002 KJ Invoices AR_HUN0009578	General and Direct Expenses	Installation and sampling of seven GW monitoring wells and advancement of six boreholes.	2002.02.11 KJ Geophys. Inv/it Rpt and Characterization/WP	
004290033	9/13/2002	1	7/20/2002	8/30/2002	Kennedy/Jenks	\$13,205.48	\$0.00	\$0.00	AR_HUN0009594	2002 KJ Invoices AR_HUN0009578	General and Direct Expenses	Follow up from June and July 2002 field work, and preparation for September 2002 field work.	2002.02.11 KJ Geophys. Inv/it Rpt and Characterization/WP	2002.10/09 51 Status Report AR_HUN0000043
004290024	10/17/2002	1	8/31/2002	9/27/2002	Kennedy/Jenks	\$10,321.22	\$0.00	\$0.00	AR_HUN0009596	2002 KJ Invoices AR_HUN0009578	General and Direct Expenses	General and Direct Expenses	2002.10/09 51 Status Report AR_HUN0000043	2002.10/09 51 Status Report AR_HUN0000043
004290025	11/14/2002	1	9/28/2002	10/25/2002	Kennedy/Jenks	\$16,794.68	\$0.00	\$0.00	AR_HUN0009598	2002 KJ Invoices AR_HUN0009578	General and Direct Expenses	Follow up from September 2002.	2002.10/09 KJ Status Report AR_HUN0000043	
004290026	12/13/2002	1	10/26/2002	11/22/2002	Kennedy/Jenks	\$11,387.94	\$11,387.94	\$0.00	AR_HUN0009600	2002 KJ Invoices AR_HUN0009578	General and Direct Expenses	Submission of 11/09/2002 Status Report.	2002.11/05 KJ Update on Char. Rpt	
004290027	1/10/2003	1	11/23/2002	12/20/2002	Kennedy/Jenks	\$4,697.24	\$0.00	\$0.00	AR_HUN0009602	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2002.11/05 KJ Status Report AR_HUN0000043	
004290028	2/19/2003	1	12/21/2002	1/31/2003	Kennedy/Jenks	\$11,533.56	\$11,533.56	\$0.00	AR_HUN0009604	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2002.11/05 KJ Status Report AR_HUN0000043	
004290029	3/21/2003	1	2/1/2003	2/28/2003	Kennedy/Jenks	\$10,724.52	\$0.00	\$0.00	AR_HUN0009606	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2003.01/07 KJ Update on Characterization and GW Inv/it Report.	
004290030	4/16/2003	1	3/1/2003	3/28/2003	Kennedy/Jenks	\$9,922.84	\$0.00	\$0.00	AR_HUN0009608	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2003.01/07 KJ Update on Characterization and GW Inv/it Report.	
004290031	5/2/2003	1	3/29/2003	4/25/2003	Kennedy/Jenks	\$16,655.69	\$16,655.69	\$0.00	AR_HUN0009610	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2003.01/07 KJ Update on Characterization and GW Inv/it Report.	
004290032	7/11/2003	1	5/24/2003	6/20/2003	Kennedy/Jenks	\$509.00	\$0.00	\$0.00	AR_HUN0009612	2003 KJ Invoices AR_HUN0009602	General	Follow up from September 2002.	2003.02.25 KJ Soil + GW Inv/it Rpt	
004290033	9/23/2003	1	6/21/2003	8/29/2003	Kennedy/Jenks	\$7,952.50	\$0.00	\$0.00	AR_HUN0009614	2003 KJ Invoices AR_HUN0009602	General	Follow up from September 2002.	2003.02.25 KJ Soil + GW Inv/it Rpt	
004290034	10/14/2003	1	8/30/2003	9/26/2003	Kennedy/Jenks	\$21,398.00	\$21,398.00	\$0.00	AR_HUN0009616	2003 KJ Invoices AR_HUN0009602	General	Follow up from September 2002.	2003.02.25 KJ Soil + GW Inv/it Rpt	
004290035	11/12/2003	1	9/27/2003	10/24/2003	Kennedy/Jenks	\$9,550.09	\$9,550.09	\$0.00	AR_HUN0009618	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2004.01.15 KJ Soil + GW Inv/it Rpt	
004290036	12/10/2003	1	10/25/2003	11/21/2003	Kennedy/Jenks	\$8,518.86	\$8,518.86	\$0.00	AR_HUN0009620	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2004.01.15 KJ Soil + GW Inv/it Rpt	
004290037	1/13/2004	1	11/23/2003	12/27/2003	Kennedy/Jenks	\$1,866.00	\$1,866.00	\$0.00	AR_HUN0009622	2003 KJ Invoices AR_HUN0009602	General and Direct Expenses	Follow up from September 2002.	2004.01.15 KJ Soil + GW Inv/it Rpt	
004290038	2/18/2004	1	12/20/2003	1/30/2004	Kennedy/Jenks	\$12,444.24	\$12,444.24	\$0.00	AR_HUN0009624	2004 KJ Invoices AR_HUN0009602	General and Direct Expenses	Preparation for February 2004 Groundwater Monitoring Report.	2004.01.16 KJ Feb 2003 Apr 2004 SA GW Mon Rpt	
004290039	3/19/2004	1	1/31/2004	2/27/2004	Kennedy/Jenks	\$14,805.32	\$14,805.32	\$0.00	AR_HUN0009626	2004 KJ Invoices AR_HUN0009602	General Site Inspection and Direct Expenses	February 2004 Groundwater Monitoring.	2004.01.16 KJ Feb 2003 Apr 2004 SA GW Mon Rpt	

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Invoice Number	Invoice / Rota- Assured Phase Cover Letter Date	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Reg. Dates	Invoice Document/Source	Invoice Cost Category Description(s)	Activities Sourced(s)	Notes	
618	5/20/2004	1	4/30/2004	Kennedy/Jenks	\$41,502.08	\$41,502.08	\$0.00	AR_HUN00009528	2004 KJ Invoices AR_HUN00009522	General Site Inspection, Direct Expenses	2004/08/16 MJ Feb 2003 Apr 2004 SA GW Mon Rpt AR_HUN00009528		
1544	6/21/2004	1	5/20/2004	Kennedy/Jenks	\$14,941.58	\$14,941.58	\$0.00	AR_HUN00009533	2004 KJ Invoices AR_HUN00009522	General Site Inspection, Direct Expenses	2005/06/21 21.5fe Char Rpt AR_HUN00009522		
2504	7/29/2004	1	6/26/2004	Kennedy/Jenks	\$24,166.27	\$24,166.27	\$0.00	AR_HUN00009535	2004 KJ Invoices AR_HUN00009522	General Site Inspection, Direct Expenses	2004/08/16 MJ Feb 2003 Apr 2004 SA GW Mon Rpt AR_HUN00009528		
2790	8/16/2004	1	6/27/2004	Kennedy/Jenks	\$41,579.34	\$41,579.34	\$0.00	AR_HUN00009540	2004 KJ Invoices AR_HUN00009522	General Site Inspection, Direct Expenses	2004 KJ Invoices AR_HUN00009522		
3752	9/20/2004	1	7/31/2004	Kennedy/Jenks	\$40,279.85	\$40,279.85	\$0.00	AR_HUN00009544	2004 KJ Invoices AR_HUN00009522	General Site Inspection, Direct Expenses	2004 KJ Invoices AR_HUN00009522		
4124	10/11/2004	1	8/28/2004	Kennedy/Jenks	\$23,410.59	\$23,410.59	\$0.00	AR_HUN00009564	2004 KJ Invoices AR_HUN00009522	General and Direct Expenses	2004 KJ Invoices AR_HUN00009522		
5323	12/8/2004	1	9/25/2004	Kennedy/Jenks	\$20,925.75	\$20,925.75	\$0.00	AR_HUN00009568	2004 KJ Invoices AR_HUN00009522	General and Direct Expenses	2004 KJ Invoices AR_HUN00009522		
5668	12/17/2004	1	10/30/2004	Kennedy/Jenks	\$16,883.77	\$16,883.77	\$0.00	AR_HUN00009672	2004 KJ Invoices AR_HUN00009522	General Site Inspection, Direct Expenses	2004 KJ Invoices AR_HUN00009522		
6474	1/17/2005	1	11/27/2004	Kennedy/Jenks	\$15,564.55	\$15,564.55	\$0.00	AR_HUN00009674	2005 KJ Invoices AR_HUN00009574	General and Direct Expenses	2004/06/21 21.5fe Char Rpt AR_HUN00009522		
7184	2/10/2005	1	1/1/2005	Kennedy/Jenks	\$26,062.60	\$26,062.60	\$0.00	AR_HUN00009681	2005 KJ Invoices AR_HUN00009574	General Site Inspection, Direct Expenses	2005 KJ Invoices AR_HUN00009574		
7931	3/21/2005	1	1/29/2005	Kennedy/Jenks	\$33,496.65	\$33,496.65	\$0.00	AR_HUN00009685	2005 KJ Invoices AR_HUN00009574	General Site Inspection, Direct Expenses	2005 KJ Invoices AR_HUN00009574		
8601	4/15/2005	1	2/26/2005	4/15/2005	Kennedy/Jenks	\$116,448.15	\$116,448.15	\$0.00	AR_HUN00009693	2005 KJ Invoices AR_HUN00009574	General Site Inspection, Direct Expenses	2005 KJ Invoices AR_HUN00009574	
8971	5/11/2005	1	3/26/2005	4/29/2005	Kennedy/Jenks	\$31,795.47	\$31,795.47	\$0.00	AR_HUN00009702	2005 KJ Invoices AR_HUN00009574	General and Direct Expenses	2005 KJ Invoices AR_HUN00009574	
9766	6/17/2005	1	4/30/2005	5/27/2005	Kennedy/Jenks	\$23,785.48	\$23,785.48	\$0.00	AR_HUN00009708	2005 KJ Invoices AR_HUN00009574	General Site Inspection, Direct Expenses	2005 KJ Invoices AR_HUN00009574	

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10447	7/14/2005	1	5/28/2005	6/24/2005	Kennedy/Jenks	\$9,330.63	\$0.00	\$0.00	AR_HUN0009715	2005 KI Invoices AR_HUN0009714	General, Default Task, Direct Expenses	Preparation of groundwater monitoring report
11094	8/12/2005	1	6/25/2005	7/29/2005	Kennedy/Jenks	\$23,823.78	\$0.00	\$0.00	AR_HUN0009718	2005 KI Invoices AR_HUN0009714	General, Site Inspection, Default Task, Direct Expenses	Preparation of shallow regime report
11731	9/19/2005	1	7/30/2005	8/26/2005	Kennedy/Jenks	\$25,637.53	\$0.00	\$0.00	AR_HUN0009722	2005 KI Invoices AR_HUN0009714	General, Site Inspection, Default Task, Direct Expenses	Preparation of groundwater monitoring report
12786	10/25/2005	1	8/27/2005	9/30/2005	Kennedy/Jenks	\$25,055.85	\$0.00	\$0.00	AR_HUN0009727	2005 KI Invoices AR_HUN0009714	General, Site Inspection, Default Task, Direct Expenses	Preparation of shallow regime report
13733	12/8/2005	1	10/1/2005	11/25/2005	Kennedy/Jenks	\$52,300.43	\$0.00	\$0.00	AR_HUN0009732	2005 KI Invoices AR_HUN0009714	General, Site Inspection, Default Task, Direct Expenses	Preparation of groundwater monitoring report
14561	2/8/2006	1	11/26/2005	12/30/2005	Kennedy/Jenks	\$25,184.91	\$0.00	\$0.00	AR_HUN0009740	2005 KI Invoices AR_HUN0009740	General, Default Task, Direct Expenses	Preparation of shallow regime report
15995	3/7/2006	1	12/31/2005	2/10/2006	Kennedy/Jenks	\$21,975.19	\$0.00	\$0.00	AR_HUN0009747	2006 KI Invoices AR_HUN0009740	General, Default Task, Direct Expenses	Preparation of shallow regime report
15980	3/14/2006	1	2/11/2006	2/29/2006	Kennedy/Jenks	\$8,517.00	\$0.00	\$0.00	AR_HUN0009751	2006 KI Invoices AR_HUN0009740	General, Direct Expenses	Preparation of shallow regime report
16783	4/25/2006	1	2/25/2006	3/31/2006	Kennedy/Jenks	\$26,883.53	\$0.00	\$0.00	AR_HUN0009757	2006 KI Invoices AR_HUN0009740	General, Default Task, Site Inspection, Direct Expenses	Preparation of shallow regime report
17193	5/12/2006	1	4/1/2006	4/28/2006	Kennedy/Jenks	\$20,194.60	\$0.00	\$0.00	AR_HUN0009761	2006 KI Invoices AR_HUN0009740	General, Default Task, Direct Expenses	Preparation of shallow regime report
17826	6/16/2006	1	4/29/2006	6/9/2006	Kennedy/Jenks	\$42,849.15	\$0.00	\$0.00	AR_HUN0009764	2006 KI Invoices AR_HUN0009740	General, Default Task, Direct Expenses, Site Inspection	Preparation of shallow regime report
18284	7/17/2006	1	6/10/2006	6/30/2006	Kennedy/Jenks	\$7,056.03	\$0.00	\$0.00	AR_HUN0009775	2006 KI Invoices AR_HUN0009740	General, Direct Expenses	Preparation of shallow regime report
19796	8/16/2006	2	7/17/2006	7/29/2006	Kennedy/Jenks	\$11,339.66	\$0.00	\$0.00	AR_HUN0009778	2006 KI Invoices AR_HUN0009740	General, Project Mgmt. & Quality Control, Direct Expenses	Preparation of shallow regime report
19823	9/8/2006	2	7/29/2006	8/23/2006	Kennedy/Jenks	\$15,404.41	\$0.00	\$0.00	AR_HUN0009782	2006 KI Invoices AR_HUN0009740	General, Project Mgmt. & Quality Control, Direct Expenses	Preparation of shallow regime report

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20483	10/25/2006	2	8/26/2006	9/29/2006	Kennedy/Jenks	\$6,194.61	\$0.00	\$0.00	AR_HUN0009791	2006 KI Invoices AR_HUN0009740	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Direct Expenses	Preparation of 3/2006 groundwater monitoring report, Project planning & management, Site Characterization 2006, Direct Expenses for 3/2006 groundwater monitoring	2006 KI Invoices AR_HUN0009740 2006.10.30.12.01.2006 GW Mon Rep AR_HUN0009712	
20851	11/20/2006	2	9/30/2006	10/27/2006	Kennedy/Jenks	\$12,683.74	\$0.00	\$0.00	AR_HUN0009794	2006 KI Invoices AR_HUN0009740	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Preparation of 4/2006 groundwater monitoring report, Project planning & management, Site Characterization 2006, Direct Expenses from October (4Q) groundwater monitoring	2006 KI Invoices AR_HUN0009740 2006.12.21.12.01.2006 GW Mon Rep AR_HUN0009730	
21367	12/8/2006	2	10/28/2006	11/24/2006	Kennedy/Jenks	\$12,204.41	\$0.00	\$0.00	AR_HUN0009798	2006 KI Invoices AR_HUN0009740	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Preparation of 4/2006 groundwater monitoring report, Project planning & misc. project management	2006 KI Invoices AR_HUN0009740 2006.12.21.12.01.2006 GW Mon Rep AR_HUN0009730	
21900	1/10/2007	2	11/25/2006	12/29/2006	Kennedy/Jenks	\$7,025.01	\$0.00	\$0.00	AR_HUN0009807	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Direct Expenses	Preparation of 4/2006 groundwater monitoring report, Project planning & misc. project management	2007 KI Invoices AR_HUN0009807	
22866	2/9/2007	2	12/30/2006	1/26/2007	Kennedy/Jenks	\$15,223.63	\$0.00	\$0.00	AR_HUN0009810	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Direct Expenses	Preparation of October (4Q) groundwater monitoring	2008 KI Invoices AR_HUN0009807	
23131	3/8/2007	2	1/27/2007	2/23/2007	Kennedy/Jenks	\$22,721.77	\$0.00	\$0.00	AR_HUN0009815	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Direct Expenses	Project planning and misc. project management from 1/2007 groundwater monitoring	2009 KI Invoices AR_HUN0009807	
23754	4/25/2007	2	2/24/2007	3/30/2007	Kennedy/Jenks	\$12,924.17	\$0.00	\$0.00	AR_HUN0009821	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Project planning and misc. project management from 1/2007 groundwater monitoring	2010 KI Invoices AR_HUN0009807	
25053	6/25/2007	2	3/31/2007	5/25/2007	Kennedy/Jenks	\$27,529.58	\$0.00	\$0.00	AR_HUN0009826	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Direct Expenses	Project planning for future site investigations	2011 KI Invoices AR_HUN0009807	
26931	8/17/2007	2	5/26/2007	7/27/2007	Kennedy/Jenks	\$18,935.12	\$0.00	\$0.00	AR_HUN0009835	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Project planning and misc. project management from 5/2007 groundwater monitoring report, Follow up from 3/2007 groundwater monitoring	2012 KI Invoices AR_HUN0009807	
26718	9/11/2007	2	7/28/2007	8/31/2007	Kennedy/Jenks	\$9,623.03	\$0.00	\$0.00	AR_HUN0009839	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Direct Expenses	Project planning and misc. project management from 7/2007 groundwater monitoring	2013 KI Invoices AR_HUN0009807	
28887	11/28/2007	2	9/1/2007	10/26/2007	Kennedy/Jenks	\$13,644.34	\$0.00	\$0.00	AR_HUN0009842	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Correspondence with OEM, Correspondence from 3/2007 groundwater monitoring report, Follow up from 5/2007 groundwater monitoring, Scoping issues	2014 KI Invoices AR_HUN0009807 2016.06.21.12.01.2007 GW Mon Rep AR_HUN0009807	
28942	12/12/2007	2	10/27/2007	11/30/2007	Kennedy/Jenks	\$13,590.68	\$0.00	\$0.00	AR_HUN0009849	2007 KI Invoices AR_HUN0009807	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Preparation of 4/2007 groundwater monitoring report, Project management, Correspondence from 3/2007 groundwater monitoring report, Scoping issues including accessibility, Redline Aerial Data	2015 KI Invoices AR_HUN0009807 2016.06.21.12.01.2007	
29718	1/13/2008	2	12/1/2007	12/28/2007	Kennedy/Jenks	\$7,304.35	\$0.00	\$0.00	AR_HUN0009857	2008.01.-2008.02 KI Invoices AR_HUN0009857	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Preparation of 4/2007 and 4/2007 groundwater monitoring reports, Project management	2008.01.-2008.02 KI Invoices AR_HUN0009857 2016.06.21.12.01.2007	
30004	2/21/2008	2	12/29/2007	1/23/2008	Kennedy/Jenks	\$13,452.85	\$0.00	\$0.00	AR_HUN0009861	2008.01.-2008.02 KI Invoices AR_HUN0009857	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses	Preparation for 4/2007 groundwater monitoring report, Scoping issues including accessibility, Redline Aerial Data and interaction with OEM	2008.01.-2008.02 KI Invoices AR_HUN0009857 2016.06.21.12.01.2007	

Invoice Number	Invoice / Cover Letter Number	Period Start	Period End	Vendor	Investigation Total	Invoice Total	Invoice Document/Source	Invoice Cont. Category Description(s)	Activities/Notes	Activities Source(s)	Notes
31045	9/27/2008	2	1/26/2008	Kennedy/Jenks	\$31,586.66	\$31,586.66	AR_HUN100021858	Project Management, Labor and O&Cs, related to first quarter monitoring and preparation of the first quarter 2008 monitoring report. Scoping issues, including research on accreting Redstone Arsenic data and contacts. Includes interaction with ADEM staff.			2008.03.27 KJ Invoice AR_HUN100021858
31807	4/10/2008	2	3/1/2008	Kennedy/Jenks	\$8,712.28	\$8,712.28	AR_HUN100021856	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses			2008.04.10 KJ Invoice AR_HUN100021856
32516	5/15/2008	2	3/29/2008	Kennedy/Jenks	\$10,602.36	\$10,602.36	AR_HUN100021869	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses			2008.05.15 KJ Invoice AR_HUN100021869
33202	6/11/2008	2	4/26/2008	Kennedy/Jenks	\$4,665.45	\$4,665.45	AR_HUN100021872	Project Management, Labor and O&Cs, related to first quarter 2008 monitoring report. Scoping issues and preparation of work plan. Includes interaction with ADEM staff.			2008.05.11 KJ Invoice AR_HUN100021872
33761	7/8/2008	2	5/31/2008	Kennedy/Jenks	\$6,621.25	\$6,621.25	AR_HUN100021895	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006			2008.06.11 KJ Invoice AR_HUN100021895
34474	8/26/2008	2	6/29/2008	Kennedy/Jenks	\$25,056.35	\$25,056.35	AR_HUN100021892	Project Management, Labor and O&Cs, related to first quarter 2008 monitoring report. Scoping issues and preparation of work plan. Includes interaction with ADEM staff.			2008.06.11 KJ Invoice AR_HUN100021892
35152	9/29/2008	2	7/26/2008	Kennedy/Jenks	\$20,026.48	\$20,026.48	AR_HUN100021886	Project Management, Preparation of Q2008 groundwater monitoring report and follow up from CP/T/MP Fieldwork, preparation			2008.07 - 2009.01 KJ Invoice AR_HUN100021886
35489	10/7/2008	2	8/30/2008	Kennedy/Jenks	\$26,786.32	\$26,786.32	AR_HUN100021883	Project Management, Preparation of Q2008 groundwater monitoring report and follow up from CP/T/MP Fieldwork			2008.07 - 2009.01 KJ Invoice AR_HUN100021883
36811	12/5/2008	2	9/27/2008	Kennedy/Jenks	\$137,657.29	\$137,657.29	AR_HUN100021877	Project Management, Preparation of Q2008 groundwater monitoring report and follow up from CP/T/MP Fieldwork			2008.07 - 2009.01 KJ Invoice AR_HUN100021877
37458	12/30/2008	2	11/1/2008	Kennedy/Jenks	\$25,608.67	\$25,608.67	AR_HUN100021871	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses			2008.07 - 2009.01 KJ Invoice AR_HUN100021871
37949	1/22/2009	2	11/29/2008	Kennedy/Jenks	\$25,349.96	\$25,349.96	AR_HUN100021864	Project Mgmt. & Quality Control, Groundwater Monitoring 2006, Site Characterization 2006, Direct Expenses			2008.07 - 2009.01 KJ Invoice AR_HUN100021864
38946	2/27/2009	2	12/29/2008	Kennedy/Jenks	\$24,310.75	\$24,310.75	AR_HUN100021845	Project Management, Preparation of Q2008 quarterly groundwater monitoring reports. Follow up from Q2008 groundwater monitoring. Evaluation of CP/T/MP data and seismic data. Planning for well installations.			2008.07 - 2009.01 KJ Invoice AR_HUN100021845
											2008.06.21 KJ Site Char Rpt AR_HUN100021807
											2009.02 - 2010.02 KJ Invoice AR_HUN100021898

Exhibit B - Invoice Summary

Invoice Number	Invoice / Cover Letter Date	Role-Assigned Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Beg. Balances	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes
39124	3/19/2009	2	2/1/2009	3/6/2009	Kennedy/Jenks	\$65,427.73	\$65,427.73	\$0.00	\$0.00	AR_HUN100009941	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Direct Expenses, GS database preparation	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2010/06-21 Site Char Rd AR_HUN100021207 New Task Code Headings
39753	4/22/2009	2	3/7/2009	4/3/2009	Kennedy/Jenks	\$55,693.00	\$55,693.00	\$0.00	\$0.00	AR_HUN100009937	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Reporting Negative groundwater well installation expenses, Direct Expenses, Seismic Reflection and CP/AMP data assessment, Selection and CP/AMP data analysis	2009/02 - 2010/02 KJ Invoices AR_HUN100009948
40279	5/20/2009	2	4/4/2009	4/24/2009	Kennedy/Jenks	\$27,098.07	\$27,098.07	\$0.00	\$0.00	AR_HUN100009932	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Project Management for 2009/0 Groundwater monitoring, Reporting Negative groundwater well installation expenses, preparation of boring logs, and land survey	2009/02 - 2010/02 KJ Invoices AR_HUN100009948
41541	7/2/2009	2	4/25/2009	5/29/2009	Kennedy/Jenks	\$49,394.15	\$49,394.15	\$16,234.44	\$0.00	AR_HUN100009927	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Indoor Air Screening Level Assessment, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2009/06-17 Indoor Air Screening and Seismic test AR_HUN100009948
41750	7/21/2009	2	5/30/2009	6/26/2009	Kennedy/Jenks	\$22,355.90	\$16,235.67	\$0.00	\$0.00	AR_HUN100009923	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Project Management for 2009/0 Groundwater monitoring, Reporting Negative groundwater well installation & construction, Indoor Air Screening Level Assessment, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2009/06-17 Indoor Air Screening and Seismic test AR_HUN100009948
42360	8/12/2009	2	6/27/2009	7/31/2009	Kennedy/Jenks	\$33,811.82	\$33,811.82	\$0.00	\$0.00	AR_HUN100009919	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Report Seismic Reflection & CP/AMP data evaluation	2009/02 - 2010/02 KJ Invoices AR_HUN100009948
43009	9/18/2009	2	8/1/2009	8/29/2009	Kennedy/Jenks	\$53,340.97	\$53,340.97	\$0.00	\$0.00	AR_HUN100009915	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Report Seismic Reflection & CP/AMP, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2010/06-20 Groundwater monitoring, Reporting Negative groundwater well installation to Seismic reflection, CP/AMP data evaluation
43943	10/27/2009	2	8/28/2009	9/25/2009	Kennedy/Jenks	\$40,730.06	\$40,730.06	\$0.00	\$0.00	AR_HUN100009911	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Report Seismic Reflection & CP/AMP, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2010/06-20 Groundwater monitoring, Reporting Negative groundwater well installation to Seismic reflection, CP/AMP data evaluation
44600	12/18/2009	2	9/26/2009	10/30/2009	Kennedy/Jenks	\$55,642.02	\$55,642.02	\$0.00	\$0.00	AR_HUN100009907	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Report Seismic Reflection & CP/AMP, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2010/06-20 Groundwater monitoring, Reporting Negative groundwater well installation to Seismic reflection, CP/AMP data evaluation
45084	1/6/2010	2	10/31/2009	11/27/2009	Kennedy/Jenks	\$45,313.41	\$45,313.41	\$0.00	\$0.00	AR_HUN100009903	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Report Seismic Reflection & CP/AMP, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2010/06-20 Groundwater monitoring, Reporting Negative groundwater well installation to Seismic reflection, CP/AMP data evaluation
45490	2/3/2010	2	11/28/2009	12/25/2009	Kennedy/Jenks	\$42,297.24	\$42,297.24	\$0.00	\$0.00	AR_HUN100009908	2009/02 - 2010/02 KJ Invoices AR_HUN100009948	Project Management, Quality Control, Quarterly Groundwater Monitoring, Report Groundwater Well Installation & Construction, Report Seismic Reflection & CP/AMP, Direct Expenses	2009/02 - 2010/02 KJ Invoices AR_HUN100009948 2010/06-20 Groundwater monitoring, Reporting Negative groundwater well installation to Seismic reflection, CP/AMP data evaluation

Exhibit B - Invoice Summary

Invoice Number	Invoice Date / Cover Letter Date	Role Assumed Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Reg. Dates	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes
46229	3/1/2010	2	12/26/2009	1/29/2010	Kennedy/Jenks	\$15,530.97	\$15,530.97	\$0.00	AR_HUN00009975	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Quarterly Groundwater Monitoring, Preparation for work plan for site, Direct Expenses	Project management, 2009 quarterly groundwater monitoring, Preparation for work plan for site, characterization activities and routine groundwater monitoring proposed for 2010.	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
46560	3/11/2010	3	1/31/2010	2/26/2010	Kennedy/Jenks	\$9,209.41	\$9,209.41	\$0.00	AR_HUN00009972	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization Work Plan, Direct Expenses	Project management, Preparation for work plan for site, groundwater monitoring proposed for 2010.	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
47689	5/6/2010	3	2/27/2010	3/26/2010	Kennedy/Jenks	\$15,700.57	\$14,892.81	\$807.76	AR_HUN00009969	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization, Direct Expenses	Project management, Preparation for field characterization effort, Internal discussions regarding future remediation alternatives	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009958
47899	5/19/2010	3	3/27/2010	4/30/2010	Kennedy/Jenks	\$15,751.07	\$15,751.07	\$0.00	AR_HUN00009966	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, Communication with ADMA regarding Hurstville cost estimate, letter preparation	2010/03 - 2010/10 KJ Invoices AR_HUN00009949
48567	6/22/2010	3	5/1/2010	5/26/2010	Kennedy/Jenks	\$22,614.59	\$22,614.59	\$0.00	AR_HUN00009963	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Direct Expenses	Project management, groundwater monitoring and preparation for field characterization effort	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
49463	7/22/2010	3	5/29/2010	6/25/2010	Kennedy/Jenks	\$25,311.43	\$25,311.43	\$0.00	AR_HUN00009960	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Direct Expenses	Project management, groundwater monitoring report	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
49564	9/3/2010	3	6/26/2010	7/30/2010	Kennedy/Jenks	\$27,027.94	\$26,702.75	\$325.19	AR_HUN00009956	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Direct Expenses	Project management, groundwater monitoring report	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
50622	9/17/2010	3	7/31/2010	8/27/2010	Kennedy/Jenks	\$45,384.60	\$45,384.60	\$0.00	AR_HUN00009953	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Direct Expenses	Project management, groundwater monitoring and preparation for first phase of benthic and remediation planning activities	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
51487	10/28/2010	3	8/28/2010	9/24/2010	Kennedy/Jenks	\$41,190.39	\$41,190.39	\$0.00	AR_HUN00009949	2010/03 - 2010/10 KJ Invoices AR_HUN00009949	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Direct Expenses	Project management, groundwater monitoring and preparation for first phase of benthic and remediation planning activities	2010/03 - 2010/10 KJ Invoices AR_HUN00009949 AR_HUN00009957
52442	11/22/2010	3	9/25/2010	10/29/2010	Kennedy/Jenks	\$39,290.97	\$34,265.52	\$5,024.45	AR_HUN00011558	2010/11/22 KJ Invoice AR_HUN00011558	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Direct Expenses	Project management, 3200ft groundwater monitoring follow up and report preparation	2010/11/22 KJ Invoice AR_HUN00011558.pdf
52708	12/17/2010	3	10/30/2010	11/26/2010	Kennedy/Jenks	\$31,522.66	\$23,743.36	\$779.30	AR_HUN00011555	2010/12/17 KJ Invoice AR_HUN00011555	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Remediation Planning, Direct Expenses	Project management, groundwater monitoring report	2010/12/17 KJ Invoice AR_HUN00011555
53773	2/3/2011	3	11/27/2010	12/3/2010	Kennedy/Jenks	\$27,534.93	\$21,493.54	\$6,391.39	AR_HUN00011551	2011/02/09 KJ Invoice AR_HUN00011551	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Remediation Planning, Direct Expenses	Project management, groundwater monitoring report for drafting of second benthic evaluation or remedial alternatives	2011/02/09 KJ Invoice AR_HUN00011551

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Invoice Number	Invoice / Cover Letter Date	Role-Assigned Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Reg. Dates	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes
54960	2/28/2011	3	1/1/2011	1/26/2011	Kennedy/Jenks	\$32,231.65	\$32,831.65	\$0.00	\$0.00	AR_HUN00011546	Project Management Routine Groundwater Monitoring Field Characterization 2010 Direct Expenses	Project management Data evaluation for Wyle Huntsville Groundwater monitoring events Dill 100 borehole for MW-2 and review geologic conditions, winnif regolith	2011.02.28 K Invoice AR_HUN00011546 2016.06.21 K 5me Char Reg AR_HUN00012107
56161	5/18/2011	3	3/26/2011	4/29/2011	Kennedy/Jenks	\$76,639.56	\$73,548.01	\$2,491.55	\$0.00	AR_HUN00011379	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Direct Expenses	Onsite meeting with Arrow monitoring and 20011 & groundwater monitoring at well location MW-27 associated with cancellation of down hole monitoring wells	2011.05.18 K Invoice AR_HUN00011379 2016.06.21 K 5me Char Reg AR_HUN00012107
56895	6/17/2011	3	4/30/2011	5/27/2011	Kennedy/Jenks	\$47,200.25	\$45,097.74	\$2,302.51	\$0.00	AR_HUN00011541	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Direct Expenses	Project management Drilling at well location MW-27. Development of conceptual site model Evaluation of remedial options	2011.06.17 K Invoice AR_HUN00011541 2016.06.21 K 5me Char Reg AR_HUN00012107
57337	7/8/2011	3	5/28/2011	6/24/2011	Kennedy/Jenks	\$23,461.63	\$23,957.02	\$95.39	\$0.00	AR_HUN00011537	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Direct Expenses	Project management Water management and data compilation Evaluation of remedial options	2011.07.08 K Invoice AR_HUN00011537 2016.06.21 K 5me Char Reg AR_HUN00012107
59006	9/15/2011	3	6/25/2011	8/26/2011	Kennedy/Jenks	\$108,691.67	\$106,895.59	\$1,896.08	\$0.00	AR_HUN0001126	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Source Area Screening & Reporting, Initial Risk Assessment, Direct Expenses	Project management Review of data and test results Geophysical survey 202011 groundwater monitoring report preparation	2011.07.08 K Invoice AR_HUN00011537 2011.09.15 K Invoice AR_HUN00011526
60733	11/29/2011	3	9/7/2011	10/28/2011	Kennedy/Jenks	\$85,441.91	\$79,429.75	\$6,012.16	\$0.00	AR_HUN0001121	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Remedial Investigation, Initial Risk Assessment, Remediation Planning, Direct Expenses	Project management Conceptual model for multilevel 3D/2011 groundwater monitoring report preparation	2011.11.29 K Invoice AR_HUN00011521
60841	12/16/2011	3	10/29/2011	11/25/2011	Kennedy/Jenks	\$21,360.19	\$19,551.00	\$1,809.19	\$0.00	AR_HUN00011517	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Remedial Investigation, Direct Expenses	Project management Profiling/management of waste generated from drilling and well development Installation of cluster wells at MW-28 and MW-29 Data evaluation for preliminary risk screening evaluation.	2011.12.16 K Invoice AR_HUN00011517
61782	1/13/2012	3	11/26/2011	12/30/2011	Kennedy/Jenks	\$30,511.95	\$30,511.95	\$0.00	\$0.00	AR_HUN00011512	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Remedial Investigation, Direct Expenses	Project management Profiling/management of waste generated from drilling and well development Development of conceptual site model Remediation planning (no description provided)	2012.01.13 K Invoice AR_HUN00011512
62475	2/8/2012	3	12/31/2011	1/27/2012	Kennedy/Jenks	\$24,136.58	\$24,332.48	\$2,204.10	\$0.00	AR_HUN00011508	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010 Direct Expenses	Project management 4D/2011 groundwater monitoring report preparation	2012.02.08 K Invoice AR_HUN00011508
63140	3/7/2012	3	1/28/2012	2/29/2012	Kennedy/Jenks	\$43,585.65	\$44,734.85	\$2,250.80	\$0.00	AR_HUN00011503	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Remediation Planning, Direct Expenses	Project management 10/2012 groundwater monitoring report preparation	2012.03.07 K Invoice AR_HUN00011503
C2-13471	3/8/2012	3	2/7/2012	2/14/2012	SGS Accutest	\$4,800.00	\$4,800.00	\$0.00	\$0.00	AR_HUN00011564	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Remediation Planning, Direct Expenses	Laboratory analytical test for analysis of VOCs for 64 samples	2012.03.08 SGS Invoice AR_HUN00011564

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Invoice Number	Invoice / Cover Letter Date	Rate-Assigned Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Reg. Dates	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes
64092	4/18/2012	3	2/25/2012	3/30/2012	Kennedy/Jenks	\$19,312.52	\$19,345.19	\$607.33	AR_HUNTO0011499	2012.04.18 K1 invoice AR_HUNTO0011499	Project Management, Quality Control, Routine Groundwater Monitoring, Field Characterization 2010, Source Area Screening & Reporting, Direct Expenses	Project management, preparation of a non-action letter for future remedial activities. Discussion on potential remedial options.	2012.04.18 K1 invoice AR_HUNTO0011499
65136	5/31/2012	3	3/31/2012	4/27/2012	Kennedy/Jenks	\$3,375.81	\$3,325.81	\$0.00	AR_HUNTO0011496	2012.05.31 K1 invoice AR_HUNTO0011496	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial activities.	2012.05.31 K1 invoice AR_HUNTO0011496
66031	7/09/2012	3	4/28/2012	5/25/2012	Kennedy/Jenks	\$5,482.24	\$4,482.24	\$0.00	AR_HUNTO0011493	2012.07.31 K1 invoice AR_HUNTO0011493	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial activities.	2012.07.31 K1 invoice AR_HUNTO0011493
66551	7/30/2012	3	5/26/2012	6/29/2012	Kennedy/Jenks	\$42,188.32	\$42,188.32	\$0.00	AR_HUNTO0011490	2012.07.30 K1 invoice AR_HUNTO0011490	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of Q2012 groundwater monitoring report.	2012.07.30 K1 invoice AR_HUNTO0011490
66658	9/7/2012	3	6/30/2012	7/27/2012	Kennedy/Jenks	\$21,840.88	\$21,431.90	\$408.98	AR_HUNTO0011487	2012.09.07 K1 invoice AR_HUNTO0011487	Project Management, Quality Control, Routine Groundwater Monitoring, Remediation Planning, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2012.09.07 K1 invoice AR_HUNTO0011487
68007	9/06/2012	3	7/28/2012	8/31/2012	Kennedy/Jenks	\$2,648.32	\$2,648.32	\$0.00	AR_HUNTO0011484	2012.09.26 K1 invoice AR_HUNTO0011484	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2012.09.26 K1 invoice AR_HUNTO0011484
68780	11/5/2012	3	9/1/2012	9/28/2012	Kennedy/Jenks	\$1,445.68	\$1,445.68	\$0.00	AR_HUNTO0011481	2012.11.05 K1 invoice AR_HUNTO0011481	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2012.11.05 K1 invoice AR_HUNTO0011481
69085	11/21/2012	3	9/29/2012	10/26/2012	Kennedy/Jenks	\$2,851.63	\$2,851.63	\$0.00	AR_HUNTO0011478	2012.11.21 K1 invoice AR_HUNTO0011478	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2012.11.21 K1 invoice AR_HUNTO0011478
69801	12/4/2012	3	10/27/2012	11/30/2012	Kennedy/Jenks	\$10,488.05	\$10,488.05	\$0.00	AR_HUNTO0011475	2012.12.13 K1 invoice AR_HUNTO0011475	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2012.12.13 K1 invoice AR_HUNTO0011475
C2-18205	2/6/2013	3	NA	NA	SGS Accutest	\$3,003.00	\$3,003.00	\$0.00	AR_HUNTO0011566	2013.02.06 SG5 invoice AR_HUNTO0011566	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Laboratory analytical fees for analysis of 6 samples, dissolved gases for 6 samples.	2013.02.06 SG5 invoice AR_HUNTO0011566
71090	2/7/2013	3	1/1/2012	1/25/2013	Kennedy/Jenks	\$24,795.63	\$24,795.63	\$0.00	AR_HUNTO0011472	2013.02.07 K1 invoice AR_HUNTO0011472	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2013.02.07 K1 invoice AR_HUNTO0011472
C2-18269	2/8/2013	3	NA	NA	SGS Accutest	\$2,065.00	\$2,065.00	\$0.00	AR_HUNTO0011568	2013.02.08 SG5 invoice 2 AR_HUNTO0011568	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Laboratory analytical fees for analysis of 4 samples, dissolved gases for 4 samples.	2013.02.08 SG5 invoice 2 AR_HUNTO0011568
C2-18243	2/8/2013	3	NA	NA	SGS Accutest	\$1,539.00	\$1,539.00	\$0.00	AR_HUNTO0011567	2013.02.08 SG5 invoice 2 AR_HUNTO0011567	Project Management, Quality Control, Routine Groundwater Monitoring, Direct Expenses	Laboratory analytical fees for analysis of 3 samples, dissolved gases for 3 samples.	2013.02.08 SG5 invoice 2 AR_HUNTO0011567
72483	4/23/2013	3	1/26/2013	3/29/2013	Kennedy/Jenks	\$92,691.93	\$60,792.31	\$22,899.62	AR_HUNTO0011466	2013.04.23 K1 invoice AR_HUNTO0011466	Project Management, Quality Control, Routine Groundwater Monitoring, Source Area Screening & Reporting, Initial Risk Assessment, Direct Expenses	Project management, preparation of a non-action letter for future remedial activities.	2013.04.23 K1 invoice AR_HUNTO0011466
73112	5/23/2013	3	3/30/2013	4/26/2013	Kennedy/Jenks	\$24,570.18	\$18,547.06	\$6,023.12	AR_HUNTO0011463	2013.05.23 K1 invoice AR_HUNTO0011463	Project Management, Quality Control, Routine Groundwater Monitoring, Initial Risk Assessment, Direct Expenses	Project management, preparation of a non-action letter for future remedial efforts.	2013.05.23 K1 invoice AR_HUNTO0011463

Invoice Number	Invoice Date	Period Start	Period End	Vendor	Investigation Total	Remediation Total	Investigation Total	Invoice Document/Source	Invoice Category Description(s)	Activities Source(s)	Notes
74056	7/18/2013	3	4/27/2013	Kennedy/Jenks	\$14,395.83	\$1,784.30	\$0.00	AR_HUN00011458	Project Management & Quality Control Route the Groundwater Monitoring, Remediation/Investigation Initial Risk Assessment, Direct Expenses	Project management and costing for future remedial investigations for remedial and health risk investigations Q2013 groundwater monitoring report	2013.07.18 K1 Invoice AR_HUN00011458
74717	7/25/2013	3	6/1/2013	Kennedy/Jenks	\$16,180.13	\$1,506.71	\$0.00	AR_HUN00011455	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning & health risk assessment	2013.07.25 K1 Invoice AR_HUN00011455
76023	9/17/2013	3	6/29/2013	Kennedy/Jenks	\$25,695.93	\$0.00	\$0.00	AR_HUN00011452	Project Mgmt & Quality Control Route the Groundwater Monitoring, Route Area Screening & Reporting, Direct Expenses	Project management and costing for future remedial investigations	2013.09.17 K1 Invoice AR_HUN00011452
76897	10/22/2013	3	8/31/2013	Kennedy/Jenks	\$20,186.76	\$0.00	\$0.00	AR_HUN00011449	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning for galapex investigations	2013.10.22 K1 Invoice AR_HUN00011449
77652	11/27/2013	3	9/28/2013	Kennedy/Jenks	\$6,558.60	\$0.00	\$0.00	AR_HUN00011447	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Project management and costing for future remedial investigations	2013.11.27 K1 Invoice AR_HUN00011447
78492	1/3/2014	3	10/26/2013	Kennedy/Jenks	\$3,277.19	\$0.00	\$0.00	AR_HUN00011444	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning for galapex investigations	2013.12.21 K1 Site Char Rep AR_HUN00011444.pdf
79910	2/11/2014	3	11/30/2013	Kennedy/Jenks	\$19,352.03	\$0.00	\$0.00	AR_HUN00011438	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Project management and costing for future remedial investigations	2013.02.11 K1 Invoice AR_HUN00011438.pdf
80635	3/14/2014	3	2/11/2014	Kennedy/Jenks	\$20,263.82	\$0.00	\$0.00	AR_HUN00011435	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning for galapex investigations	2014.03.14 K1 Invoice AR_HUN00011435.pdf
81559	4/8/2014	3	3/11/2014	Kennedy/Jenks	\$10,319.29	\$0.00	\$0.00	AR_HUN00011430	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Project management and costing for future remedial investigations	2014.04.08 K1 Invoice AR_HUN00011430.pdf
82159	4/30/2014	3	3/28/2014	Kennedy/Jenks	\$9,672.12	\$0.00	\$0.00	AR_HUN00011428	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning for galapex investigations	2014.04.30 K1 Invoice AR_HUN00011428.pdf
83506	6/17/2014	3	4/26/2014	Kennedy/Jenks	\$6,183.68	\$0.00	\$0.00	AR_HUN00011425	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Project management and costing for future remedial investigations	2014.06.17 K1 Invoice AR_HUN00011425.pdf
84372	7/17/2014	3	5/31/2014	Kennedy/Jenks	\$9,002.11	\$0.00	\$0.00	AR_HUN00011422	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning for galapex investigations	2014.07.17 K1 Invoice AR_HUN00011422.pdf
86197	9/17/2014	3	6/28/2014	Kennedy/Jenks	\$13,141.91	\$0.00	\$0.00	AR_HUN00011419	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Project management and costing for future remedial investigations	2014.09.17 K1 Invoice AR_HUN00011419.pdf
86642	10/8/2014	3	8/30/2014	Kennedy/Jenks	\$5,434.35	\$0.00	\$0.00	AR_HUN00011416	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Field characterization 2013 direct effort on ABBA characterization report	2014.10.08 K1 Invoice AR_HUN00011416.pdf
87949	12/1/2014	3	9/27/2014	Kennedy/Jenks	\$22,864.83	\$0.00	\$0.00	AR_HUN00011413	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Field characterization 2013 direct effort on ABBA characterization report	2014.12.01 K1 Invoice AR_HUN00011413.pdf
88666	12/19/2014	3	11/4/2014	Kennedy/Jenks	\$19,770.04	\$0.00	\$0.00	AR_HUN00011409	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Field characterization 2013 direct effort on ABBA characterization report	2014.12.19 K1 Invoice AR_HUN00011409.pdf
89477	3/17/2015	3	11/29/2014	Kennedy/Jenks	\$9,331.88	\$0.00	\$0.00	AR_HUN00011406	Project Mgmt & Quality Control Route the Groundwater Monitoring, Direct Expenses	Planning for galapex investigations	2015.03.17 K1 Invoice AR_HUN00011406.pdf

Exhibit B - Invoice Summary

Invoice Number	Invoice / Cover letter Date	Role Assumed Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Reg. Dates	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes
59847	3/20/2015	3	12/26/2014	2/27/2015	Kennedy/Jenks	\$9,824.80	\$9,824.80	\$0.00	AR_HUN00011403	2015-03-20 JU invoice AR_HUN00011403.pdf	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Direct Expenses	Project management & monitoring report preparation. AR_HUN00011403.pdf. AR_HUN0005471. AR_HUN0005471.	2015-03-20 JU invoice AR_HUN00011403.pdf. AR_HUN0005471. AR_HUN0005471.
91695	4/21/2015	3	2/28/2015	3/27/2015	Kennedy/Jenks	\$22,665.06	\$22,665.06	\$0.00	AR_HUN00011398	2015-04-21 JU invoice AR_HUN00011398.pdf	Project Mgmt. & Quality Control, Routine Groundwater Monitoring, Direct Expenses	'Q4 2014 groundwater monitoring report preparation' likely refers to the Second Half 2014 semi annual Groundwater monitoring report submitted 4/30/2015. Q2 2015 groundwater monitoring	2015-04-21 JU invoice AR_HUN00011398.pdf. AR_HUN0005470. AR_HUN0005471.
94131	7/20/2015	3	3/28/2015	6/26/2015	Kennedy/Jenks	\$84,080.52	\$84,080.52	\$0.00	AR_HUN00011393	2015-07-20 JU invoice AR_HUN00011393.pdf	Project Mgmt. & Agency Interaction, Site Characterization Report, Risk Assessment, Direct Expenses	Project management & monitoring report preparation. AR_HUN00011393.pdf. AR_HUN0005470. AR_HUN0005471.	2015-07-20 JU invoice AR_HUN00011393.pdf. AR_HUN0005470. AR_HUN0005471.
57229	12/29/2015	3	6/27/2015	11/27/2015	Kennedy/Jenks	\$125,254.07	\$125,254.07	\$0.00	AR_HUN00011385	2015-12-29 JU invoice AR_HUN00011385.pdf	Project Mgmt. & Agency Interaction, Site Characterization Report, Groundwater Monitoring, Direct Expenses	Site characterization report 'includes preparation of site characterization report to activities at the site since 2008-' assure refers to discuss of activities in Q2/2015 Site Characterization Report. Second half 2015 groundwater monitoring report for 2015 Site Characterization Report.	2015-12-29 JU invoice AR_HUN00011385.pdf. AR_HUN0005471.
59861	3/23/2016	3	11/28/2015	2/26/2016	Kennedy/Jenks	\$35,635.46	\$35,635.46	\$0.00	AR_HUN00011390	2016-03-23 JU invoice AR_HUN00011390.pdf	Project Mgmt. & Agency Interaction, Site Characterization Report, Groundwater Monitoring, Direct Expenses	Site characterization report 'includes preparation of site characterization report to activities at the site since 2008-' assure refers to discuss of activities in Q2/2015 Site Characterization Report. Second half 2015 groundwater monitoring and second half groundwater monitoring.	2016-03-23 JU invoice AR_HUN00011390.pdf.
101301	5/9/2016	3	2/27/2016	4/29/2016	Kennedy/Jenks	\$18,245.84	\$18,245.84	\$0.00	AR_HUN000114348	2016-05-09 JU invoice AR_HUN000114348.pdf	Project Mgmt. & Agency Interaction, Site Characterization Report, Groundwater Monitoring, Document Inventory, Direct Expenses	Project management & monitoring report for first half 2016 (5/1/2016). Preparation of 2/27/16 Site Characterization Report.	2016-05-09 JU invoice AR_HUN000114348.pdf. AR_HUN0005431. AR_HUN0005433.
102360	6/27/2016	3	4/30/2016	5/27/2016	Kennedy/Jenks	\$23,511.07	\$23,511.07	\$0.00	AR_HUN000114553	2016-06-27 JU invoice AR_HUN000114553.pdf	Project Mgmt. & Agency Interaction, Site Characterization Report, Groundwater Monitoring, Document Inventory, Direct Expenses	Site characterization report 'includes preparation of site characterization report to activities at the site since 2008-' assure refers to discuss of activities in Q2/2015 Site Characterization Report. Second half 2016 groundwater monitoring report.	2016-06-27 JU invoice AR_HUN000114553.pdf.
103294	7/18/2016	3	5/28/2016	6/24/2016	Kennedy/Jenks	\$17,110.87	\$17,110.87	\$0.00	AR_HUN000114558	2016-07-18 JU invoice AR_HUN000114558.pdf	Project Mgmt. & Agency Interaction, Site Characterization Report, Groundwater Monitoring, Document Inventory, Direct Expenses	Document production in support of insurance company mediation.	2016-07-18 JU invoice AR_HUN000114558.pdf. AR_HUN0005476. AR_HUN0005477.
104741	9/14/2016	4	6/25/2016	8/26/2016	Kennedy/Jenks	\$16,936.79	\$16,936.79	\$18,885.69	AR_HUN000114863	2016-09-14 JU invoice AR_HUN000114863.pdf	Project Mgmt. & Agency Interaction, Groundwater Monitoring, Document Inventory, Direct Expenses	Planning for meeting with ADEM. Expenses for 5/1/2016 groundwater monitoring. Expenses for ADEM associated with risk assessment. Document production in support of insurance company mediation.	2016-09-14 JU invoice AR_HUN000114863.pdf. AR_HUN0005478.

Exhibit B - Invoice Summary

Invoice Number	Invoice / Cover Letter Date	Role / Assigned Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Legal and Doc Production Total	Invoice Reg. Dates	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Activities Source(s)	Notes	
105645	10/28/2016	4	8/27/2016	9/30/2016	Kennedy/Jenks	\$19,726.84			\$0.00	2016.10.28 10:30 AM	Invoice AR_HUN100014368.PDF	Project Mgmt & Agency/Interaction, Groundwater Monitoring, Source Area Screening & Reporting, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management with ADEM associated with risk assessment. According to the 12/30/16 First Half 2016 Groundwater Monitoring Report: "Following submittal of Kennedy/Jenks Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring at the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring efforts and closely supporting the remedial efforts and closely watching specific wells that are trending." Source area screening on this, and subsequent invoices characterized as remediation costs because sampling was to support the risk assessment (a remediation activity).			
107374	12/22/2016	4	10/17/2016	11/25/2016	Kennedy/Jenks	\$0.00	\$19,100.67	\$13,265.18	AR_HUN100014368	2016.10.28 10:30 AM	Invoice AR_HUN100014368.PDF	Project Mgmt & Agency/Interaction, Groundwater Monitoring, Source Area Screening & Reporting, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management with ADEM associated with risk assessment. According to the 12/30/16 First Half 2016 Groundwater Monitoring Report: "Following submittal of Kennedy/Jenks Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring at the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring efforts and closely supporting the remedial efforts and closely watching specific wells that are trending." Source area screening on this, and subsequent invoices characterized as remediation costs because sampling was to support the risk assessment (a remediation activity).			
727663.24	2/10/2017	4	2/9/2017	2/9/2017	Safety Kleen	\$2,209.22	\$0.00	\$2,209.22	\$0.00	AR_HUN100014374	2016.12.22 10:30 AM	Invoice AR_HUN100014374.PDF	Project Mgmt & Agency/Interaction, Groundwater Monitoring, GW Well Installations, R1 Field Testing, Source Area Screening, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management with ADEM associated with risk assessment. According to the 12/30/16 First Half 2016 Groundwater Monitoring Report: "Following submittal of Kennedy/Jenks Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring at the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring efforts and closely supporting the remedial efforts and closely watching specific wells that are trending." Source area screening on this, and subsequent invoices characterized as remediation costs because sampling was to support the risk assessment (a remediation activity).		
108258	2/15/2017	4	11/26/2016	12/30/2016	Kennedy/Jenks	\$0.00	\$26,599.67	\$33,406.56	AR_HUN100014380	2017.02.15 10:30 AM	Invoice AR_HUN100014380.PDF	Project Mgmt & Agency/Interaction, Groundwater Monitoring, R1 Field Testing, Source Area Screening, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management with ADEM associated with risk assessment. According to the 12/30/16 First Half 2016 Groundwater Monitoring Report: "Following submittal of Kennedy/Jenks Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring at the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring efforts and closely supporting the remedial efforts and closely watching specific wells that are trending." Source area screening on this, and subsequent invoices characterized as remediation costs because sampling was to support the risk assessment (a remediation activity).			
109478	3/17/2017	4	12/31/2016	1/27/2017	Kennedy/Jenks	\$28,458.89	\$0.00	\$33,336.40	AR_HUN100014394	2017.03.17 10:30 AM	Invoice AR_HUN100014394.PDF	Project Mgmt & Agency/Interaction, Groundwater Monitoring, GW Well Installations, R1 Field Testing, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management with ADEM associated with risk assessment. According to the 12/30/16 First Half 2016 Groundwater Monitoring Report: "Following submittal of Kennedy/Jenks Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring at the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring efforts and closely supporting the remedial efforts and closely watching specific wells that are trending." Source area screening on this, and subsequent invoices characterized as remediation costs because sampling was to support the risk assessment (a remediation activity).			
110100	3/27/2017	4	1/28/2017	2/24/2017	Kennedy/Jenks	\$34,922.54	\$1,009.40	\$21,862.00	\$12,205.14	AR_HUN100014408	2017.03.27 10:30 AM	Invoice AR_HUN100014408.PDF	Project Mgmt & Agency/Interaction, Groundwater Monitoring, GW Well Installations, R1 Field Testing, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management with ADEM associated with risk assessment. According to the 12/30/16 First Half 2016 Groundwater Monitoring Report: "Following submittal of Kennedy/Jenks Site Characterization Report dated 21 June 2016, ADEM and Kennedy/Jenks agreed that routine groundwater monitoring at the entire Site for characterization purposes should be discontinued. Going forward, semiannual groundwater monitoring efforts and closely supporting the remedial efforts and closely watching specific wells that are trending." Source area screening on this, and subsequent invoices characterized as remediation costs because sampling was to support the risk assessment (a remediation activity).		
170316	3/30/2017	4	3/27/2017	3/30/2017	The Probing Company	\$0.00	\$0.00	\$0.00	\$0.00	AR_HUN100014408	2017.03.27 10:30 AM	Invoice AR_HUN100014408.PDF	"Sampling with Helium Leak Testing" Additional Sampling - Change from original scope of work - Soil/Gas/Leak testing & Summa Canisters	"Sampling with Helium Leak Testing" Additional Sampling - Change from original scope of work - Soil/Gas/Leak testing & Summa Canisters	Assumed to be related to tasks on KJ invoice 111600, which are predominantly remediation costs	
72726439	4/4/2017	4	4/4/2017	4/4/2017	Safety Kleen	\$165.68	\$0.00	\$165.68	\$0.00	AR_HUN100014408	2017.04.03 10:30 AM	Invoice AR_HUN100014408.PDF	Doms (1)	Doms (1)	Assumed to be related to tasks on KJ invoice 111600, which are predominantly remediation costs	

Invoice Number	Invoice / Cover Letter Date	Roux-Assigned Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Legal and Doc Production Total	Invoice Bill-Sales	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Activities/Source(s)	Notes
111600	5/23/2017	4	2/25/2017	4/28/2017	Kennedy/Jenks	\$87,715.86	\$47,712	\$63,393.52	\$23,299.22	AR_HUNTO0021415	2017.05.23 KJ invoice AR_HUNTO0021415.PDF	Project Mgmt. & Agency interaction, Site Characterization, Groundwater Monitoring, GW/M Well Installations, RI Field Testing, Source Area Screening & Reporting, Document Inventory, Direct Expenses	Project management, Transmission of paper copies of a report to ADBM Finalization of Second Half 2016 Groundwater Monitoring Report Preparation of work plan and planning for groundwater monitoring well installation Planning for remedial investigation field testing Installation of soil vapor probes Planning for risk assessment document inventory with related description	2017.05.23 KJ invoice AR_HUNTO0021415.PDF	
11712696	5/31/2017	4	5/14/2017	5/24/2017	Cascade	\$69,721.50	\$0.00	\$69,721.50	\$0.00	AR_HUNTO0026564	Invoices - AR_HUNTO0026564	Per Item - 13 days of 13 man crew drill and sample - 382.5' of bedrock and overburden and well installation Disposal of DOW Well Completion and Development off Box 17.75	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 112245, which are remediation costs
170517	5/31/2017	4	Unknown	Unknown	The Probing Company	\$4,500.00	\$0.00	\$4,500.00	\$0.00	AR_HUNTO0027295	Invoices - AR_HUNTO0027295	Sol Sampling - Helium Shunt in Testing	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 112245, which are remediation costs
1001571044	6/5/2017	4	5/15/2017	5/31/2017	Clean Harbors	\$2,384.51	\$0.00	\$2,384.51	\$0.00	AR_HUNTO0026573	Invoices - AR_HUNTO0026573	Delivery, Setup, Rental & Pickup of Frac Tank - 15' Sump, & rental of Open Top Rail-off Box 17.75	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 112245, which are remediation costs
112245	6/7/2017	4	4/29/2017	5/26/2017	Kennedy/Jenks	\$54,672.78	\$0.00	\$54,672.78	\$0.00	AR_HUNTO0021422	2017.06.07 KJ invoice AR_HUNTO0021422.PDF	Project Mgmt. & Agency interaction, Groundwater Monitoring, GW/M Well Installations, RI Field Testing, Source Area Screening & Reporting, Document Inventory, Direct Expenses	Project management, Transmission of paper copies of a report to ADBM S1/2017 Groundwater monitoring installation of MW-30, 31 and 32 Planning for remedial investigation field testing Follow up from installation of soil vapor probes	2017.06.07 KJ invoice AR_HUNTO0021422.PDF	
802771	6/27/2017	4	Unknown	Unknown	SAME	\$1,280.00	\$0.00	\$1,280.00	\$0.00	AR_HUNTO0027299	Invoices - AR_HUNTO0027299	Monitoring Well Locations Survey	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 114354, which are predominantly remediation costs
10015607512	7/3/2017	4	6/19/2017	6/30/2017	Clean Harbors	\$5,832.64	\$0.00	\$5,832.64	\$0.00	AR_HUNTO0026576	Invoices - AR_HUNTO0026576	Delivery, Setup, Rental & Pickup of Frac Tank - 30' Sump, & rental of Open Top Rail-off Box 17.75	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 114354, which are predominantly remediation costs
1001931243	7/20/2017	4	7/1/2017	7/1/2017	Clean Harbors	\$1,232.00	\$0.00	\$1,232.00	\$0.00	AR_HUNTO0026980	Invoices - AR_HUNTO0026980	Cleaning & Disposal of Solids/Heel - 7' 000 lbs	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 114354, which are predominantly remediation costs
10015473972	8/1/2017	4	7/1/2017	7/1/2017	Clean Harbors	\$404.66	\$0.00	\$404.66	\$0.00	AR_HUNTO0026983	Invoices - AR_HUNTO0026983	Tank & Disposal of Groundwater - 4' tan gal	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 114354, which are predominantly remediation costs
114354	8/7/2017	4	5/27/2017	7/28/2017	Kennedy/Jenks	\$103,320.29	\$105.46	\$102,657.92	\$556.91	AR_HUNTO0021433	2017.08.07 KJ invoice AR_HUNTO0021433.PDF	Project Mgmt. & Agency interaction, Site Characterization Report, Groundwater Monitoring, GW/M Well Installations, RI Field Testing, Source Area Screening & Reporting, Risk Assessment, Initial Remedial Planning, Document Inventory, Direct Expenses	Project management, Transmission of paper copies of a report to ADBM S2/2017 groundwater monitoring and preparation of groundwater monitoring report Follow up from installation of MW-30, 31 and 32 Planning for remedial investigation field testing Round one soil vapor sampling Evaluation of initial soil vapor results Remedial planning Document inventory with related description	2017.08.07 KJ invoice AR_HUNTO0021433.PDF	
17103072	10/30/2017	4	10/30/2017	10/30/2017	ProEnviro, Inc.	\$1,520.17	\$0.00	\$1,520.17	\$0.00	AR_HUNTO0027297	Invoices - AR_HUNTO0027297	Sampling bottawee	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Assumed to be related to tasks on KJ invoice 116705, which are remediation costs
116705	11/9/2017	4	7/29/2017	10/27/2017	Kennedy/Jenks	\$69,115.70	\$0.00	\$65,370.64	\$4,923.06	AR_HUNTO0026561	Invoices - AR_HUNTO0026561	2017 GW Monitoring in Huntsville Finalization of combined GW Monitoring and well installation report, Task now complete Evaluation of soil vapor sampling and report Finalization of round two of soil vapor sampling Evaluation of initial soil vapor results	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	Invoices - AR_HUNTO0026561 - 00027297/p-201-407.pdf	

Exhibit B - Invoice Summary

Invoice Number	Invoice / Cover letter Date	Role-Assigned Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Documt/Source	Invoice Cost Category Description(s)	Activities/Notes	Activities Source(s)	Notes	
171407	11/15/2017	4	Unknown	Unknown	The Probing Company	\$5,850.00	\$0.00	\$5,850.00	AR_HUNTO0027097	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Invoices - "Three Days of Vapor Sampling" "Boring Installation"	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 11/6/05, which are remediation costs	
120617	12/4/2017	4	Unknown	Unknown	Suburban Infrastructure Renewal	\$1,000.00	\$0.00	\$1,000.00	AR_HUNTO0027098	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 11/6/05, which are remediation costs	
119389	2/9/2018	4	10/28/2017	1/26/2018	Kennedy/Jenks	\$94,238.52	\$0.00	\$86,179.54	AR_HUNTO0026699	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Source Area Screening and Reporting, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 11/10/01, which are remediation costs
76182007	2/20/2018	4	2/20/2018	2/20/2018	Safety Klein	\$3,070.20	\$0.00	\$3,070.20	AR_HUNTO0027065	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Waste Disposal - 4 drums ha. groundwater	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 11/10/01, which are remediation costs	
121091	4/20/2018	4	1/27/2018	3/30/2018	Kennedy/Jenks	\$103,558.94	\$0.00	\$29,961.07	AR_HUNTO0026703	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Results not shown directly after invoice, but are included in Active/Source document.
78852663	5/11/2018	4	5/11/2018	5/11/2018	Safety Klein	\$173.39	\$0.00	\$173.39	AR_HUNTO0027067	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 12/25/18, which are remediation costs
121194	5/24/2018	4	3/31/2018	4/27/2018	Kennedy/Jenks	\$47,104.32	\$0.00	\$30,824.77	AR_HUNTO0026706	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Results not shown directly after invoice, but are included in Active/Source document.
1222534	6/15/2018	4	4/28/2018	5/25/2018	Kennedy/Jenks	\$62,019.43	\$0.00	\$133,945.85	AR_HUNTO0026709	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
123319	7/25/2018	4	5/26/2018	6/29/2018	Kennedy/Jenks	\$27,164.79	\$0.00	\$25,745.79	AR_HUNTO0026712	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
124146	8/21/2018	4	6/30/2018	7/27/2018	Kennedy/Jenks	\$44,506.50	\$0.00	\$14,506.50	AR_HUNTO0026730	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
125298	10/16/2018	4	7/28/2018	9/26/2018	Kennedy/Jenks	\$45,353.31	\$0.00	\$45,353.31	AR_HUNTO0026734	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
78052835	10/16/2018	4	10/15/2018	10/15/2018	Safety Klein	\$1,516.44	\$0.00	\$1,516.44	AR_HUNTO0027069	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
78430481	11/9/2018	4	11/9/2018	11/9/2018	Safety Klein	\$110.31	\$0.00	\$110.31	AR_HUNTO0027071	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
126225	11/27/2018	4	9/29/2018	10/26/2018	Kennedy/Jenks	\$12,238.58	\$0.00	\$12,238.58	AR_HUNTO0027076	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
127305	1/14/2019	4	10/27/2018	12/26/2018	Kennedy/Jenks	\$55,596.84	\$0.00	\$55,596.84	AR_HUNTO0027078	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts for invoice # 12/26/18 and 12/26/19 are appended to this invoice
127577	2/1/2019	5	12/29/2018	1/25/2019	Kennedy/Jenks	\$42,180.31	\$0.00	\$42,180.31	AR_HUNTO0027073	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Receipts not shown directly after invoice, but are included in Active/Source document.
78320558	3/4/2019	5	2/28/2019	2/28/2019	Safety Klein	\$1,589.50	\$0.00	\$1,589.50	AR_HUNTO0027073	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Project Mgmt. & Agency/Interaction, Groundwater Monitoring, Risk Assessment, Risk/Remedial Planning, Document Inventory, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 12/34/05, which are remediation costs
128789	3/19/2019	5	1/26/2019	2/22/2019	Kennedy/Jenks	\$26,800.13	\$0.00	\$26,800.13	AR_HUNTO0026780	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Corrective Action Plan, GW Monitoring, P/M Communications, Pilot Test, Direct Expenses	No Cover Sheet	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 12/34/06, which are remediation costs
7850704	3/20/2019	5	3/18/2019	3/18/2019	Safety Klein	\$1,171.83	\$0.00	\$1,171.83	AR_HUNTO0027075	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Pump Test, Direct Expenses	Drums (12)	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 12/34/06, which are remediation costs
11523936	3/18/2019	5	3/20/2019	3/21/2019	Cascade	\$10,150.00	\$0.00	\$10,150.00	AR_HUNTO0026697	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Pump Host Surface Competitions	Drums (12)	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 12/34/06, which are remediation costs
3212019	3/28/2019	5	Unknown	Unknown	Suburban Infrastructure Renewal	\$650.00	\$0.00	\$650.00	AR_HUNTO0027091	Invoices - AR_HUNTO0026691-00027097/20-407.pdf	GPR Survey/Clear Bores		Invoices - AR_HUNTO0026691-00027097/20-407.pdf	Assumed to be related to tasks on K/J invoice 12/34/06, which are remediation costs

Exhibit B - Invoice Summary

Invoice Number	Invoice / Cover Letter Date	Role Assumed Phase	Period Start	Period End	Vendor	Invoice Total	Investigation Total	Remediation Total	Invoice Document/Source	Invoice Cost Category Description(s)	Activities/Notes	Notes
129466	4/22/2019	5	2/23/2019	3/29/2019	Kennedy/Junks	\$48,843.28	\$0.00	\$48,843.28	AR_HUNTO0026891	Corrective Action Plan, GW Monitoring, Vehicle Maintenance, PM/Communications, Pilot Test, Direct Expenses	No Cover Sheet	
798653721	4/25/2019	5	4/23/2019	4/23/2019	Safety Klein	\$2,779.30	\$0.00	\$2,779.30	AR_HUNTO0027077	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Drums (80)	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
1002816937	5/1/2019	5	4/23/2019	4/30/2019	Clean Harbors	\$1,259.12	\$0.00	\$1,259.12	AR_HUNTO0026896	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Roll-off Drop off and Rental	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
79331839	5/6/2019	5	5/2/2019	5/2/2019	Safety Klein	\$4,097.13	\$0.00	\$4,097.13	AR_HUNTO0027079	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Waste Disposal - 12 drums of hazardous and non-hazardous groundwater	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
119219184	5/7/2019	5	4/22/2019	4/30/2019	Cascade	\$49,673.50	\$0.00	\$49,673.50	AR_HUNTO0026899	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Soil Drilling - 583 feet Well Installation - 579 feet Well Management	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
129975	5/14/2019	5	3/30/2019	4/26/2019	Kennedy/Junks	\$49,713.59	\$0.00	\$49,713.59	AR_HUNTO0026899	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Surface Complications	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
1002853864	5/29/2019	5	Unknown	5/31/2019	Clean Harbors	\$709.59	\$0.00	\$709.59	AR_HUNTO0026890	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Roll-off Drop off and Rental	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
801777850	6/4/2019	5	5/31/2019	5/31/2019	Safety Klein	\$23,918.18	\$0.00	\$23,918.18	AR_HUNTO0027082	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Waste Disposal - 30 drums of hazardous and non-hazardous groundwater and overpacks	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
130547	6/11/2019	5	4/27/2019	5/24/2019	Kennedy/Junks	\$35,644.89	\$0.00	\$35,644.89	AR_HUNTO0026835	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Communication, GW Monitoring, PM/Communications, Pilot Test, Direct Expenses	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
80303933	6/24/2019	5	6/20/2019	6/20/2019	Safety Klein	\$5938.50	\$0.00	\$5938.50	AR_HUNTO0027084	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Waste Disposal - 3 drums of non-hazardous semisolids	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
1002897375	7/1/2019	5	Unknown	6/20/2019	Clean Harbors	\$5686.70	\$0.00	\$5686.70	AR_HUNTO0026592	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Roll-off Drop off and Rental	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
1002917501	7/16/2019	5	Unknown	7/3/2019	Clean Harbors	\$68.67	\$0.00	\$68.67	AR_HUNTO0026594	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Roll-off Drop off and Rental	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
131395	7/18/2019	5	5/25/2019	6/28/2019	Kennedy/Junks	\$20,582.88	\$0.00	\$20,582.88	AR_HUNTO0026870	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Communication, GW Monitoring, PM/Communications, Pilot Test, Direct Expenses	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
1002921004	7/19/2019	5	7/3/2019	7/3/2019	Clean Harbors	\$1,728.50	\$0.00	\$1,728.50	AR_HUNTO0026596	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Bulk Soil Transportation and Disposal - 4 tons	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
119319184	9/11/2019	5	9/3/2019	9/5/2019	Cascade	\$9,775.00	\$0.00	\$9,775.00	AR_HUNTO0026971	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Soil Drilling - 35 feet Well Installation - 35 feet Well Management	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
133259	9/26/2019	5	6/29/2019	8/21/2019	Kennedy/Junks	\$46,233.46	\$0.00	\$46,233.46	AR_HUNTO0026882	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Surface Complications	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
954466	10/11/2019	5	Unknown	Unknown	SA ME	\$966.86	\$0.00	\$966.86	AR_HUNTO0026976	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf	Well Locations Surveying	Invoices - AR_HUNTO0026891-00027097-p1-201-407.pdf
133394	10/18/2019	5	8/24/2019	9/27/2019	Kennedy/Junks	\$51,502.59	\$0.00	\$51,502.59	AR_HUNTO0026588	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	No Cover Sheet	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
134435	11/11/2019	5	9/28/2019	10/25/2019	Kennedy/Junks	\$29,777.77	\$0.00	\$29,777.77	AR_HUNTO0026534	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	GW Monitoring, PM/Communications, Pilot Test, Legal Support, Non-Biased Effort, Direct Expenses	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
134777	12/9/2019	5	10/26/2019	11/21/2019	Kennedy/Junks	\$41,297.93	\$0.00	\$41,297.93	AR_HUNTO0026547	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf	Communication, GW Monitoring, PM/Communications, Pilot Test, Legal Support, Direct Expenses	Invoices - AR_HUNTO0026891-00027097-p1-200.pdf
TOTAL INVESTIGATION TOTAL REMEDIATION TOTAL DOCUMENT PRODUCTION TOTAL COSTS												
\$3,785,582.26 \$1,438,083.17 \$207,518.23 \$5,431,183.68												

a) Invoice not included in documents produced. Invoice total determined based on "Previous Billing" total on invoice No. 004290012 minus "Total Billing" of invoice No. 004290010

Exhibit C

Kennedy/Jenks Task Cost Summary

Invoice Number	Invoice Date	Period Start Date	Period End Date	Invoice Total	General			Sales by Product Type			Sales by Region			Sales by Customer		
					Total			Tech. Hours			Total			Tech. Hours		
					Hours	Rate	Total	Hours	Rate	Total	Hours	Rate	Total	Hours	Rate	Total
INV-2023-00001	2023-01-01	2023-01-01	2023-01-05	\$10,000.00	500	\$200.00	\$100,000.00	100	\$200.00	\$20,000.00	500	\$150.00	\$75,000.00	100	\$150.00	\$15,000.00
INV-2023-00002	2023-01-02	2023-01-06	2023-01-10	\$12,000.00	600	\$200.00	\$120,000.00	120	\$200.00	\$24,000.00	600	\$150.00	\$90,000.00	120	\$150.00	\$18,000.00
INV-2023-00003	2023-01-03	2023-01-07	2023-01-11	\$11,000.00	550	\$200.00	\$110,000.00	110	\$200.00	\$22,000.00	550	\$150.00	\$85,000.00	110	\$150.00	\$16,500.00
INV-2023-00004	2023-01-04	2023-01-08	2023-01-12	\$13,000.00	650	\$200.00	\$130,000.00	130	\$200.00	\$26,000.00	650	\$150.00	\$95,000.00	130	\$150.00	\$19,500.00
INV-2023-00005	2023-01-05	2023-01-09	2023-01-13	\$14,000.00	700	\$200.00	\$140,000.00	140	\$200.00	\$28,000.00	700	\$150.00	\$100,000.00	140	\$150.00	\$20,000.00
INV-2023-00006	2023-01-06	2023-01-10	2023-01-14	\$15,000.00	750	\$200.00	\$150,000.00	150	\$200.00	\$30,000.00	750	\$150.00	\$105,000.00	150	\$150.00	\$22,500.00
INV-2023-00007	2023-01-07	2023-01-11	2023-01-15	\$16,000.00	800	\$200.00	\$160,000.00	160	\$200.00	\$32,000.00	800	\$150.00	\$110,000.00	160	\$150.00	\$24,000.00
INV-2023-00008	2023-01-08	2023-01-12	2023-01-16	\$17,000.00	850	\$200.00	\$170,000.00	170	\$200.00	\$34,000.00	850	\$150.00	\$115,000.00	170	\$150.00	\$25,500.00
INV-2023-00009	2023-01-09	2023-01-13	2023-01-17	\$18,000.00	900	\$200.00	\$180,000.00	180	\$200.00	\$36,000.00	900	\$150.00	\$120,000.00	180	\$150.00	\$27,000.00
INV-2023-00010	2023-01-10	2023-01-14	2023-01-18	\$19,000.00	950	\$200.00	\$190,000.00	190	\$200.00	\$38,000.00	950	\$150.00	\$125,000.00	190	\$150.00	\$28,500.00
INV-2023-00011	2023-01-11	2023-01-15	2023-01-19	\$20,000.00	1000	\$200.00	\$200,000.00	200	\$200.00	\$40,000.00	1000	\$150.00	\$130,000.00	200	\$150.00	\$30,000.00
INV-2023-00012	2023-01-12	2023-01-16	2023-01-20	\$21,000.00	1050	\$200.00	\$210,000.00	210	\$200.00	\$42,000.00	1050	\$150.00	\$135,000.00	210	\$150.00	\$31,500.00
INV-2023-00013	2023-01-13	2023-01-17	2023-01-21	\$22,000.00	1100	\$200.00	\$220,000.00	220	\$200.00	\$44,000.00	1100	\$150.00	\$140,000.00	220	\$150.00	\$33,000.00
INV-2023-00014	2023-01-14	2023-01-18	2023-01-22	\$23,000.00	1150	\$200.00	\$230,000.00	230	\$200.00	\$46,000.00	1150	\$150.00	\$145,000.00	230	\$150.00	\$34,500.00
INV-2023-00015	2023-01-15	2023-01-19	2023-01-23	\$24,000.00	1200	\$200.00	\$240,000.00	240	\$200.00	\$48,000.00	1200	\$150.00	\$150,000.00	240	\$150.00	\$36,000.00
INV-2023-00016	2023-01-16	2023-01-20	2023-01-24	\$25,000.00	1250	\$200.00	\$250,000.00	250	\$200.00	\$50,000.00	1250	\$150.00	\$155,000.00	250	\$150.00	\$37,500.00
INV-2023-00017	2023-01-17	2023-01-21	2023-01-25	\$26,000.00	1300	\$200.00	\$260,000.00	260	\$200.00	\$52,000.00	1300	\$150.00	\$160,000.00	260	\$150.00	\$39,000.00
INV-2023-00018	2023-01-18	2023-01-22	2023-01-26	\$27,000.00	1350	\$200.00	\$270,000.00	270	\$200.00	\$54,000.00	1350	\$150.00	\$165,000.00	270	\$150.00	\$40,500.00
INV-2023-00019	2023-01-19	2023-01-23	2023-01-27	\$28,000.00	1400	\$200.00	\$280,000.00	280	\$200.00	\$56,000.00	1400	\$150.00	\$170,000.00	280	\$150.00	\$42,000.00
INV-2023-00020	2023-01-20	2023-01-24	2023-01-28	\$29,000.00	1450	\$200.00	\$290,000.00	290	\$200.00	\$58,000.00	1450	\$150.00	\$175,000.00	290	\$150.00	\$43,500.00
INV-2023-00021	2023-01-21	2023-01-25	2023-01-29	\$30,000.00	1500	\$200.00	\$300,000.00	300	\$200.00	\$60,000.00	1500	\$150.00	\$180,000.00	300	\$150.00	\$45,000.00
INV-2023-00022	2023-01-22	2023-01-26	2023-01-30	\$31,000.00	1550	\$200.00	\$310,000.00	310	\$200.00	\$62,000.00	1550	\$150.00	\$185,000.00	310	\$150.00	\$46,500.00
INV-2023-00023	2023-01-23	2023-01-27	2023-01-31	\$32,000.00	1600	\$200.00	\$320,000.00	320	\$200.00	\$64,000.00	1600	\$150.00	\$190,000.00	320	\$150.00	\$48,000.00
INV-2023-00024	2023-01-24	2023-01-28	2023-01-32	\$33,000.00	1650	\$200.00	\$330,000.00	330	\$200.00	\$66,000.00	1650	\$150.00	\$195,000.00	330	\$150.00	\$49,500.00
INV-2023-00025	2023-01-25	2023-01-29	2023-01-33	\$34,000.00	1700	\$200.00	\$340,000.00	340	\$200.00	\$68,000.00	1700	\$150.00	\$200,000.00	340	\$150.00	\$51,000.00
INV-2023-00026	2023-01-26	2023-01-30	2023-01-34	\$35,000.00	1750	\$200.00	\$350,000.00	350	\$200.00	\$70,000.00	1750	\$150.00	\$205,000.00	350	\$150.00	\$52,500.00
INV-2023-00027	2023-01-27	2023-01-31	2023-01-35	\$36,000.00	1800	\$200.00	\$360,000.00	360	\$200.00	\$72,000.00	1800	\$150.00	\$210,000.00	360	\$150.00	\$54,000.00
INV-2023-00028	2023-01-28	2023-01-32	2023-01-36	\$37,000.00	1850	\$200.00	\$370,000.00	370	\$200.00	\$74,000.00	1850	\$150.00	\$215,000.00	370	\$150.00	\$55,500.00
INV-2023-00029	2023-01-29	2023-01-33	2023-01-37	\$38,000.00	1900	\$200.00	\$380,000.00	380	\$200.00	\$76,000.00	1900	\$150.00	\$220,000.00	380	\$150.00	\$57,000.00
INV-2023-00030	2023-01-30	2023-01-34	2023-01-38	\$39,000.00	1950	\$200.00	\$390,000.00	390	\$200.00	\$78,000.00	1950	\$150.00	\$225,000.00	390	\$150.00	\$58,500.00
INV-2023-00031	2023-01-31	2023-01-35	2023-01-39	\$40,000.00	2000	\$200.00	\$400,000.00	400	\$200.00	\$80,000.00	2000	\$150.00	\$230,000.00	400	\$150.00	\$60,000.00
INV-2023-00032	2023-01-32	2023-01-36	2023-01-40	\$41,000.00	2050	\$200.00	\$410,000.00	410	\$200.00	\$82,000.00	2050	\$150.00	\$235,000.00	410	\$150.00	\$61,500.00
INV-2023-00033	2023-01-33	2023-01-37	2023-01-41	\$42,000.00	2100	\$200.00	\$420,000.00	420	\$200.00	\$84,000.00	2100	\$150.00	\$240,000.00	420	\$150.00	\$63,000.00
INV-2023-00034	2023-01-34	2023-01-38	2023-01-42	\$43,000.00	2150	\$200.00	\$430,000.00	430	\$200.00	\$86,000.00	2150	\$150.00	\$245,000.00	430	\$150.00	\$64,500.00
INV-2023-00035	2023-01-35	2023-01-39	2023-01-43	\$44,000.00	2200	\$200.00	\$440,000.00	440	\$200.00	\$88,000.00	2200	\$150.00	\$250,000.00	440	\$150.00	\$66,000.00
INV-2023-00036	2023-01-36	2023-01-40	2023-01-44	\$45,000.00	2250	\$200.00	\$450,000.00	450	\$200.00	\$90,000.00	2250	\$150.00	\$255,000.00	450	\$150.00	\$67,500.00
INV-2023-00037	2023-01-37	2023-01-41	2023-01-45	\$46,000.00	2300	\$200.00	\$460,000.00	460	\$200.00	\$92,000.00	2300	\$150.00	\$260,000.00	460	\$150.00	\$69,000.00
INV-2023-00038	2023-01-38	2023-01-42	2023-01-46	\$47,000.00	2350	\$200.00	\$470,000.00	470	\$200.00	\$94,000.00	2350	\$150.00	\$265,000.00	470	\$150.00	\$70,500.00
INV-2023-00039	2023-01-39	2023-01-43	2023-01-47	\$48,000.00	2400	\$200.00	\$480,000.00	480	\$200.00	\$96,000.00	2400	\$150.00	\$270,000.00	480	\$150.00	\$72,000.00
INV-2023-00040	2023-01-40	2023-01-44	2023-01-48	\$49,000.00	2450	\$200.00	\$490,000.00	490	\$200.00	\$98,000.00	2450	\$150.00	\$275,000.00	490	\$150.00	\$73,500.00
INV-2023-00041	2023-01-41	2023-01-45	2023-01-49	\$50,000.00	2500	\$200.00	\$500,000.00	500	\$200.00	\$100,000.00	2500	\$150.00	\$280,000.00	500	\$150.00	\$75,000.00
INV-2023-00042	2023-01-42	2023-01-46	2023-01-50	\$51,000.00	2550	\$200.00	\$510,000.00	510	\$200.00	\$102,000.00	2550	\$150.00	\$285,000.00	510	\$150.00	\$76,500.00
INV-2023-00043	2023-01-43	2023-01-47	2023-01-51	\$52,000.00	2600	\$200.00	\$520,000.00	520	\$200.00	\$104,000.00	2600	\$150.00	\$290,000.00	520	\$150.00	\$78,000.00
INV-2023-00044	2023-01-44	2023-01-48	2023-01-52	\$53,000.00	2650	\$200.00	\$530,000.00	530	\$200.00	\$106,000.00	2650	\$150.00	\$295,000.00	530	\$150.00	\$79,500.00
INV-2023-00045	2023-01-45	2023-01-49	2023-01-53	\$54,000.00	2700	\$200.00	\$540,000.00	540	\$200.00	\$108,000.00	2700	\$150.00	\$300,000.00	540	\$150.00	\$81,000.00
INV-2023-00046	2023-01-46	2023-01-50	2023-01-54	\$55,000.00	2750	\$200.00	\$550,000.00	550	\$200.00	\$110,000.00	2750	\$150.00	\$305,000.00	550	\$150.00	\$82,500.00
INV-2023-00047	2023-01-47	2023-01-51	2023-01-55	\$56,000.00	2800	\$200.00	\$560,000.00	560	\$200.00	\$112,000.00	2800	\$150.00	\$310,000.00	560	\$150.00	\$84,000.00
INV-2023-00048	2023-01-48	2023-01-52	2023-01-56	\$57,000.00	2850	\$200.00	\$570,000.00	570	\$200.00	\$114,000.00	2850	\$150.00	\$315,000.00	570	\$150.00	\$85,500.00
INV-2023-00049	2023-01-49	2023-01-53	2023-01-57	\$58,000.00	2900	\$200.00	\$580,000.00	580	\$200.00	\$116,000.00	2900	\$150.00	\$320,000.00	580	\$150.00	\$87,000.00
INV-2023-00050	2023-01-50	2023-01-54	2023-01-58	\$59,000.00	2950	\$200.00	\$590,000.00	590	\$200.00	\$118,000.00	2950	\$150.00	\$325,000.00	590	\$150.00	\$88,500.00
INV-2023-00051	2023-01-51	2023-01-55	2023-01-59	\$60,000.00	3000	\$200.00	\$600,000.00	600	\$200.00	\$120,000.00	3000	\$150.00	\$330,000.00	600	\$150.00	\$90,000.00
INV-2023-00052	2023-01-52	2023-01-56	2023-01-60	\$61,000.00	3050	\$200.00	\$610,000.00	610	\$200.00	\$122,000.00	3050	\$150.00	\$335,000.00	610	\$150.00	\$91,500.00
INV-2023-00053	2023-01-53	2023-01-57	2023-01-61	\$62,000.00	3100	\$200.00	\$620,000.00	620	\$200.00	\$124,000.00	3100	\$150.00	\$340,000.00</td			

Invoice Number	Invoice Date	Period Start	Period End	Invoice Total	TSK 01 - Project Mgmt. & Admin		TSK 02 - Site Construction and Repairs		TSK 03 - Groundwater Monitoring		TSK 04 - Down Well Installation		TSK 05 - Site Response		TSK 06 - Risk Assessment		TSK 07 - Risk Management		Phase 01 - Document Assembly	
					Total	Travel	Total	Travel	Total	Travel	Total	Travel	Total	Travel	Total	Travel	Total	Total	Total	
A300	5/20/2010	4/20/2010	5/20/2010	\$1,120.00																
48507	5/20/2010	5/20/2010	5/20/2010	\$21,618.59	AIR MONITORING															
48613	5/20/2010	5/20/2010	5/20/2010	\$21,511.49	AIR MONITORING															
48616	5/20/2010	5/20/2010	5/20/2010	\$21,511.49	AIR MONITORING															
50522	5/20/2010	5/20/2010	5/20/2010	\$41,584.60	AIR MONITORING															
51437	5/20/2010	5/20/2010	5/20/2010	\$41,195.39	AIR MONITORING															
51438	5/20/2010	5/20/2010	5/20/2010	\$41,195.39	AIR MONITORING															
51439	5/20/2010	5/20/2010	5/20/2010	\$41,195.39	AIR MONITORING															
51773	5/20/2010	5/21/2010	5/21/2010	\$23,939.93	AIR MONITORING															
54005	5/20/2010	5/20/2010	5/20/2010	\$2,633.65	AIR MONITORING															
54006	5/20/2010	5/20/2010	5/20/2010	\$4,620.25	AIR MONITORING															
51313	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
50006	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
60841	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
60842	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
61372	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
61410	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64932	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64933	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64934	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64935	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64936	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64937	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64938	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64939	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64940	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64941	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64942	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64943	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64944	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64945	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64946	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64947	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64948	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64949	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64950	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64951	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64952	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64953	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64954	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64955	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64956	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64957	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64958	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64959	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64960	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64961	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64962	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64963	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64964	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64965	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64966	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64967	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64968	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64969	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64970	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64971	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64972	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64973	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64974	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64975	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64976	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64977	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64978	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64979	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64980	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64981	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64982	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64983	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64984	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64985	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64986	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64987	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64988	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64989	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR MONITORING															
64990	5/20/2010	5/20/2010	5/20/2010	\$2,929.01	AIR															

Project Alpha - Q3 2023 Performance Report												
Category	Sub-Category	Financials			Operational			Strategic Initiatives			Future Outlook	
		Budget	Actual	Variance	Efficiency	Completion	Quality	Impact	Progress	Impact	Forecast	Impact
Project Alpha	Phase A	1000000	980000	-20000	95%	85%	90%	High	75%	High	1000000	High
Project Alpha	Phase B	1500000	1450000	-50000	90%	75%	85%	Medium	60%	Medium	1500000	Medium
Project Alpha	Phase C	2000000	1950000	-50000	85%	70%	80%	Medium	50%	Medium	2000000	Medium
Project Alpha	Phase D	2500000	2400000	-100000	80%	65%	75%	Medium	40%	Medium	2500000	Medium
Project Alpha	Phase E	3000000	2800000	-200000	75%	60%	70%	Medium	30%	Medium	3000000	Medium
Project Alpha	Phase F	3500000	3300000	-200000	70%	55%	65%	Medium	20%	Medium	3500000	Medium
Project Alpha	Phase G	4000000	3800000	-200000	65%	50%	60%	Medium	10%	Medium	4000000	Medium
Project Alpha	Phase H	4500000	4300000	-200000	60%	45%	55%	Medium	0%	Medium	4500000	Medium
Project Alpha	Phase I	5000000	4800000	-200000	55%	40%	50%	Medium	-10%	Medium	5000000	Medium
Project Alpha	Phase J	5500000	5300000	-200000	50%	35%	45%	Medium	-20%	Medium	5500000	Medium
Project Alpha	Phase K	6000000	5800000	-200000	45%	30%	40%	Medium	-30%	Medium	6000000	Medium
Project Alpha	Phase L	6500000	6300000	-200000	40%	25%	35%	Medium	-40%	Medium	6500000	Medium
Project Alpha	Phase M	7000000	6800000	-200000	35%	20%	30%	Medium	-50%	Medium	7000000	Medium
Project Alpha	Phase N	7500000	7300000	-200000	30%	15%	25%	Medium	-60%	Medium	7500000	Medium
Project Alpha	Phase O	8000000	7800000	-200000	25%	10%	20%	Medium	-70%	Medium	8000000	Medium
Project Alpha	Phase P	8500000	8300000	-200000	20%	5%	15%	Medium	-80%	Medium	8500000	Medium
Project Alpha	Phase Q	9000000	8800000	-200000	15%	0%	10%	Medium	-90%	Medium	9000000	Medium
Project Alpha	Phase R	9500000	9300000	-200000	10%	0%	5%	Medium	-100%	Medium	9500000	Medium
Project Alpha	Phase S	10000000	9800000	-200000	5%	0%	0%	Medium	-110%	Medium	10000000	Medium
Project Alpha	Phase T	10500000	10300000	-200000	0%	0%	0%	Medium	-120%	Medium	10500000	Medium
Project Alpha	Phase U	11000000	10800000	-200000	0%	0%	0%	Medium	-130%	Medium	11000000	Medium
Project Alpha	Phase V	11500000	11300000	-200000	0%	0%	0%	Medium	-140%	Medium	11500000	Medium
Project Alpha	Phase W	12000000	11800000	-200000	0%	0%	0%	Medium	-150%	Medium	12000000	Medium
Project Alpha	Phase X	12500000	12200000	-200000	0%	0%	0%	Medium	-160%	Medium	12500000	Medium
Project Alpha	Phase Y	13000000	12600000	-200000	0%	0%	0%	Medium	-170%	Medium	13000000	Medium
Project Alpha	Phase Z	13500000	13000000	-200000	0%	0%	0%	Medium	-180%	Medium	13500000	Medium
Project Alpha	Phase AA	14000000	13400000	-200000	0%	0%	0%	Medium	-190%	Medium	14000000	Medium
Project Alpha	Phase BB	14500000	13800000	-200000	0%	0%	0%	Medium	-200%	Medium	14500000	Medium
Project Alpha	Phase CC	15000000	14200000	-200000	0%	0%	0%	Medium	-210%	Medium	15000000	Medium
Project Alpha	Phase DD	15500000	14600000	-200000	0%	0%	0%	Medium	-220%	Medium	15500000	Medium
Project Alpha	Phase EE	16000000	15000000	-200000	0%	0%	0%	Medium	-230%	Medium	16000000	Medium
Project Alpha	Phase FF	16500000	15400000	-200000	0%	0%	0%	Medium	-240%	Medium	16500000	Medium
Project Alpha	Phase GG	17000000	15800000	-200000	0%	0%	0%	Medium	-250%	Medium	17000000	Medium
Project Alpha	Phase HH	17500000	16200000	-200000	0%	0%	0%	Medium	-260%	Medium	17500000	Medium
Project Alpha	Phase II	18000000	16600000	-200000	0%	0%	0%	Medium	-270%	Medium	18000000	Medium
Project Alpha	Phase JJ	18500000	17000000	-200000	0%	0%	0%	Medium	-280%	Medium	18500000	Medium
Project Alpha	Phase KK	19000000	17400000	-200000	0%	0%	0%	Medium	-290%	Medium	19000000	Medium
Project Alpha	Phase LL	19500000	17800000	-200000	0%	0%	0%	Medium	-300%	Medium	19500000	Medium
Project Alpha	Phase MM	20000000	18200000	-200000	0%	0%	0%	Medium	-310%	Medium	20000000	Medium
Project Alpha	Phase NN	20500000	18600000	-200000	0%	0%	0%	Medium	-320%	Medium	20500000	Medium
Project Alpha	Phase OO	21000000	19000000	-200000	0%	0%	0%	Medium	-330%	Medium	21000000	Medium
Project Alpha	Phase PP	21500000	19400000	-200000	0%	0%	0%	Medium	-340%	Medium	21500000	Medium
Project Alpha	Phase QQ	22000000	19800000	-200000	0%	0%	0%	Medium	-350%	Medium	22000000	Medium
Project Alpha	Phase RR	22500000	20200000	-200000	0%	0%	0%	Medium	-360%	Medium	22500000	Medium
Project Alpha	Phase SS	23000000	20600000	-200000	0%	0%	0%	Medium	-370%	Medium	23000000	Medium
Project Alpha	Phase TT	23500000	21000000	-200000	0%	0%	0%	Medium	-380%	Medium	23500000	Medium
Project Alpha	Phase UU	24000000	21400000	-200000	0%	0%	0%	Medium	-390%	Medium	24000000	Medium
Project Alpha	Phase VV	24500000	21800000	-200000	0%	0%	0%	Medium	-400%	Medium	24500000	Medium
Project Alpha	Phase WW	25000000	22200000	-200000	0%	0%	0%	Medium	-410%	Medium	25000000	Medium
Project Alpha	Phase XX	25500000	22600000	-200000	0%	0%	0%	Medium	-420%	Medium	25500000	Medium
Project Alpha	Phase YY	26000000	23000000	-200000	0%	0%	0%	Medium	-430%	Medium	26000000	Medium
Project Alpha	Phase ZZ	26500000	23400000	-200000	0%	0%	0%	Medium	-440%	Medium	26500000	Medium
Project Alpha	Phase AA	27000000	23800000	-200000	0%	0%	0%	Medium	-450%	Medium	27000000	Medium
Project Alpha	Phase BB	27500000	24200000	-200000	0%	0%	0%	Medium	-460%	Medium	27500000	Medium
Project Alpha	Phase CC	28000000	24600000	-200000	0%	0%	0%	Medium	-470%	Medium	28000000	Medium
Project Alpha	Phase DD	28500000	25000000	-200000	0%	0%	0%	Medium	-480%	Medium	28500000	Medium
Project Alpha	Phase EE	29000000	25400000	-200000	0%	0%	0%	Medium	-490%	Medium	29000000	Medium
Project Alpha	Phase FF	29500000	25800000	-200000	0%	0%	0%	Medium	-500%	Medium	29500000	Medium
Project Alpha	Phase GG	30000000	26200000	-200000	0%	0%	0%	Medium	-510%	Medium	30000000	Medium
Project Alpha	Phase HH	30500000	26600000	-200000	0%	0%	0%	Medium	-520%	Medium	30500000	Medium
Project Alpha	Phase II	31000000	27000000	-200000	0%	0%	0%	Medium	-530%	Medium	31000000	Medium
Project Alpha	Phase JJ	31500000	27400000	-200000	0%	0%	0%	Medium	-540%	Medium	31500000	Medium
Project Alpha	Phase KK	32000000	27800000	-200000	0%	0%	0%	Medium	-550%	Medium	32000000	Medium
Project Alpha	Phase LL	32500000	28200000	-200000	0%	0%	0%	Medium	-560%	Medium	32500000	Medium
Project Alpha	Phase MM	33000000	28600000	-200000	0%	0%	0%	Medium	-570%	Medium	33000000	Medium
Project Alpha	Phase NN	33500000	29000000	-200000	0%	0%	0%	Medium	-580%	Medium	33500000	Medium
Project Alpha	Phase OO	34000000	29400000	-200000	0%	0%	0%	Medium	-590%	Medium	34000000	Medium
Project Alpha	Phase PP	34500000	29800000	-200000	0%	0%	0%	Medium	-600%	Medium	34500000	Medium
Project Alpha	Phase QQ	35000000	30200000	-200000	0%	0%	0%	Medium	-610%	Medium	35000000	Medium
Project Alpha	Phase RR	35500000	30600000	-200000	0%	0%	0%	Medium	-620%	Medium	35500000	Medium
Project Alpha	Phase SS	36000000	31000000	-200000	0%	0%	0%	Medium	-630%	Medium	36000000	Medium
Project Alpha	Phase TT	36500000	31400000	-200000	0%	0%	0%	Medium	-640%	Medium	36500000	Medium
Project Alpha	Phase UU	37000000	31800000	-200000	0%	0%	0%	Medium	-650%	Medium	37000000	Medium
Project Alpha	Phase VV	37500000	32200000	-200000	0%	0%	0%	Medium	-660%	Medium	37500000	Medium
Project Alpha	Phase WW	38000000	32600000	-200000	0%	0%	0%	Medium	-670%	Medium	38000000	Medium
Project Alpha	Phase XX	38500000	33000000	-200000	0%	0%	0%	Medium	-680%	Medium	38500000	Medium
Project Alpha	Phase YY	39000000	33400000	-200000	0%	0%	0%	Medium	-690%	Medium	39000000	Medium
Project Alpha	Phase ZZ	39500000	33800000	-200000	0%	0%	0%	Medium	-700%	Medium	39500000	Medium
Project Alpha	Phase AA	40000000	34200000	-200000	0%	0%	0%	Medium	-710%	Medium	40000000	Medium
Project Alpha	Phase BB	40500000	34600000	-200000	0%	0%	0%	Medium	-720%	Medium	40500000	Medium
Project Alpha	Phase CC	41000000	35000000	-200000	0%	0%	0%	Medium	-730%	Medium	41000000	Medium
Project Alpha	Phase DD	41500000	35400000	-200000	0%	0%	0%	Medium	-740%	Medium	41500000	Medium
Project Alpha	Phase EE	42000000	35800000	-200000	0%	0%	0%	Medium	-750%	Medium	42000000	Medium
Project Alpha	Phase FF	42500000	36200000	-200000	0%	0%	0%	Medium	-760%	Medium	42500000	Medium
Project Alpha	Phase GG	43000000	36600000	-200000	0%	0%	0%	Medium	-770%	Medium	43000000	Medium
Project Alpha	Phase HH	43500000	37000000	-200000	0%	0%	0%	Medium	-780%	Medium	43500000	Medium
Project Alpha	Phase II	44000000	37400000	-200000	0%	0%	0%	Medium	-790%	Medium	44000000	Medium
Project Alpha	Phase JJ	44500000	37800000	-200000	0%	0%	0%	Medium	-800%	Medium	44500000	Medium
Project Alpha	Phase KK	45000000	38200000	-200000	0%	0%	0%	Medium	-810%	Medium	45000000	Medium
Project Alpha	Phase LL	45500000	38600000	-200000	0%	0%	0%	Medium	-820%	Medium	45500000	Medium
Project Alpha	Phase MM	46000000	39000000	-200000	0%	0%	0%	Medium	-830%	Medium	46000000	Medium
Project Alpha	Phase NN	46500000	39400000	-200000	0%	0%	0%	Medium	-840%	Medium	46500000	Medium
Project Alpha	Phase OO	47000000	39800000	-200000	0%	0%	0%	Medium	-850%	Medium	47000000	Medium
Project Alpha	Phase PP	47500000	40200000	-200000	0%	0%	0%	Medium	-860%	Medium	47500000	Medium
Project Alpha	Phase QQ	48000000	40600000	-200000	0%	0%	0%	Medium	-870%	Medium	48000000	Medium
Project Alpha	Phase RR	48500000	41000000	-200000	0%	0%	0%	Medium	-880%	Medium	48500000	Medium
Project Alpha	Phase SS	49000000	41400000	-200000	0%	0%	0%	Medium	-890%	Medium	49000000	Medium
Project Alpha	Phase TT	49500000	41800000	-200000	0%	0%	0%	Medium	-900%	Medium	49500000	Medium
Project Alpha	Phase UU	50000000	42200000	-200000	0%	0%	0%	Medium	-910%	Medium	50000000	Medium
Project Alpha	Phase VV	50500000	42600000	-200000	0%	0%	0%	Medium	-920%	Medium	50500000	Medium
Project Alpha	Phase WW	51000000	43000000	-200000	0%	0%	0%	Medium	-930%	Medium	51000000	Medium
Project Alpha	Phase XX	51500000	43400000	-200000	0%	0%	0%	Medium	-940%	Medium	51500000	Medium
Project Alpha	Phase YY	52000000	43800000	-200000	0%	0%	0%	Medium	-950%	Medium	52000000	Medium
Project Alpha	Phase ZZ	52500000	44200000	-200000	0%	0%	0%	Medium	-960%	Medium	52500000	Medium

Exhibit C: Kennedy/Amico Task Cost Summary

Invoice Number	Invoice Date	Period Start	Period End	Invoice Total	Invoice Reg. Miles	Invoice Tasks						Phase: Motor Vehicle						
						Task: Corrective Action in Auto		Task: Communication [e.g. Call Center]		Task: CRM Monitoring		Task: Workforce Management		Task: PM/Compliance		Task: PHM Test		Phase: Legal
						Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
4330	6/20/2010	6/21/2010	6/20/2010	\$4,500.00	48													
48159	7/27/2010	7/28/2010	7/27/2010	\$2,123.63	46													
48160	7/27/2010	7/28/2010	7/27/2010	\$2,123.63	46													
50523	8/17/2010	8/18/2010	8/17/2010	\$4,500.00	54													
53497	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53514	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53515	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53516	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53517	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53520	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53521	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53522	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53523	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53524	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53525	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53526	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53527	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53528	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53529	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53530	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53531	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53532	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53533	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53534	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53535	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53536	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53537	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53538	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53539	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53540	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53541	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53542	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53543	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53544	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53545	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53546	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53547	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53548	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53549	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53550	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53551	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53552	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53553	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53554	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53555	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53556	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53557	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53558	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53559	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53560	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53561	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53562	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53563	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53564	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53565	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53566	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53567	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53568	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53569	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53570	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53571	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53572	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53573	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53574	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53575	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53576	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53577	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53578	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53579	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53580	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53581	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53582	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53583	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53584	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53585	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53586	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53587	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54													
53588	10/29/2010	10/30/2010	10/29/2010	\$4,120.00	54					</								

Exhibit D

Groundwater Sampling Summary

Sampling Year	Sampling Period	Sampling Date/Date Range	Sampling Information Source	Sampling Information Source Number (if 1st page)	Sampling Effort Description	Number of Groundwater Samples Collected ⁴	Invoice No. ²³	Technician Hours Billed ^{4,5}	Technician performing monitoring and associated costs.
2000	Q4	12/6/2000	Groundwater Monitoring Report, November 2001, dated 2/21/2002	AR_HUNTO0016200	Sample counts taken from Table 2 of Groundwater Monitoring Report for November 2001 samples (show 2000 samples). On November 6, 2001, water samples were collected from the wells using standard purge and sample techniques. (page 6).	3	004290004	2.25	\$ 80.00
2001	Q4	11/6/2001	Groundwater Monitoring Report dated 2/21/2002	AR_HUNTO0016200	Sample counts taken from Table 2 of Soil and Groundwater Investigation Report dated October 9, 2002	3	004290014	34	\$ 80.00
2002	Q3	7/25/2002	Status Report dated October 9, 2002 Soil and Groundwater Investigation Report, dated February 25, 2003	AR_HUNTO000043 AR_HUNTO000047	"Water levels were measured and samples were collected in nine of ten monitoring wells in late July 2002. (Status Report) Table 3 of Soil and Groundwater Investigation report shows date and number of samples collected.	9	004290023	43	\$ 85.00
2002	Q3	9/25/2002	Status Report dated October 9, 2002 Soil and Groundwater Investigation Report dated February 25, 2003	AR_HUNTO000043 AR_HUNTO000047	"Resampling. A second round of groundwater monitoring was performed in the newly installed wells on 25 September 2002. MW 9 remained dry at the time of resampling." (Status Report) Table 3 of Soil and Groundwater Investigation report shows 6 wells sampled.	6	004290024	34	\$ 85.00
2003	Q3	9/23/2003	Semianual Groundwater Monitoring Report, September 2003 and February 2004, dated August 16, 2004	AR_HUNTO0008736	9 well samples identified in Table 2 (plus one well that was dry) 4 surface water samples identified in Table 6	9	004290034	45	\$ 85.00
2004	Q1	2/4/2004	February 2004, dated August 16, 2004	AR_HUNTO0008736	9 well samples identified in Table 2 (plus one well that was dry) 5 surface water and 1 spring sample identified in Table 6	9	004290039	59	\$ 85.00
2004	Q4	11/16/2004-11/18/2004	Semianual Groundwater Monitoring Report, Fourth Quarter 2004 and First Quarter 2005, dated September 30, 2005	AR_HUNTO0005802	"During the November 2004 monitoring event, surface water samples were collected at 5 sampling locations from Turtle Creek (TC-2 through TC-5)." Also notes a spring sample. Page 9 Table 3 shows 9 groundwater samples collected.	9	5668	46.5	\$ 73.00
2005	Q1	3/15/2005-3/18/2005	Semianual Groundwater Monitoring Report, Fourth Quarter 2004 and First Quarter 2005, dated September 30, 2005	AR_HUNTO0005802	Table 3 shows 15 groundwater samples collected, 5 surface water samples, and 1 spring sample	15	8601	81	\$ 73.00
2005	Q3	7/18/2005-7/22/2005	Semianual Groundwater Monitoring Report, July 2005 and October 2005, dated March 10, 2006	AR_HUNTO0016551	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample	15	11094	81	\$ 84.00
2005	Q4	10/3/2005-10/7/2005	Semianual Groundwater Monitoring Report, July 2005 and October 2005, dated March 10, 2006	AR_HUNTO0016551	Table 10 shows 15 groundwater, 5 surface water, and 1 spring sample	15	13733	44.5	\$ 84.00
2006	Q1	1/17/2006-1/20/2006	First Quarter Groundwater Monitoring Report, January 2006, dated May 3, 2006	AR_HUNTO0017264	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample	15	15959	70	\$ 84.00
2006	Q2	4/17/2006-4/21/2006	Second Quarter Groundwater Monitoring Report, April 2006, dated July 31, 2006	AR_HUNTO0008927	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample	15	17193	73.5	\$ 84.00
2006	Q3	7/26/2006-7/28/2006	Third Quarter Groundwater Monitoring Report, July 2006, dated October 30, 2006	AR_HUNTO0009312	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample	15	19196	52.5	\$ 84.00
2006	Q4	10/10/2006-10/13/2006	Fourth Quarter Groundwater Monitoring Report, October 2006, dated December 21, 2006	AR_HUNTO0006530	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample (dry)	15	20851	67	\$ 84.00
2007	Q1	1/23/2007-1/25/2007	First Quarter Groundwater Monitoring Report, January 2007, dated April 6, 2007	AR_HUNTO0006822	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample	15	22886	45.5	\$ 84.00
2007	Q2	4/23/2007-4/26/2007	Second Quarter Groundwater Monitoring Report, April 2007, dated July 2007	AR_HUNTO0007228	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample	15	25053	74.5	\$ 95.00
2007	Q3	7/24/2007-7/27/2007	Third Quarter Groundwater Monitoring Report, July 2007, dated December 5, 2007	AR_HUNTO0007506	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample (dry)	15	26031	64.5	\$ 95.00
2007	Q4	10/30/2007-11/2/2007	Fourth Quarter Groundwater Monitoring Report, October/November 2007, dated November 26, 2008	AR_HUNTO0007783	Table 5 shows 15 groundwater, 5 surface water	15	28942	70.5	\$ 95.00
2008	Q1	1/29/2008-2/1/2008	First Quarter Groundwater Monitoring Report, January 2008, dated January 29, 2009	AR_HUNTO0007959	Table 5 shows 15 groundwater, 5 surface water	15	31045	60.5	\$ 95.00
2008	Q3	7/21/2008-7/24/2008	Third Quarter Groundwater Monitoring Report, July 2008, dated February 5, 2009	AR_HUNTO0008103	Table 5 shows 15 groundwater, 5 surface water, and 1 spring sample. Note that Table 6 indicates that no samples were collected in Q2 2008.	15	34774	67	\$ 95.00
2008	Q4	11/5/2008-11/6/2008	Fourth Quarter Groundwater Monitoring Report, November 2008, dated June 26, 2009	AR_HUNTO0008240	Table 5 shows 6 groundwater samples	6	37458	42.5	\$ 95.00
2009	Q1	2/3/2009-2/6/2009	First Quarter Groundwater Monitoring Report, February 2009, dated August 26, 2009	AR_HUNTO0008326	Table 5 shows 15 groundwater, 5 surface water	15	39124	66	\$ 85.00
2010	Q2	5/5/2010-5/14/2010	Groundwater Monitoring Report dated 5/18/2010	AR_HUNTO0002694	"Groundwater gauging and sampling were performed during March 2010. The wells were gauged on 1 May 2010, and sampled between 1 May and 14 May/2010. Surface water sampling was performed at five locations TC-1 through TC-5 in Turtle Creek on 12 May 2010."	34	48567	133.5	\$ 95.00
2010	Q3	8/23/2010-8/31/2010	Groundwater Monitoring Report dated 5/31/2011	AR_HUNTO0002701	"Groundwater gauging and sampling were performed during August 2010. The wells were gauged on 23 August 2010, and sampled between 24 August and 31 August 2010. Surface water was not sampled in Q3 2010."	24	50622 and 51487	107.5	\$ 95.00
2010	Q4	11/10/2010-11/20/2010	Groundwater Monitoring Report dated 6/17/2011	AR_HUNTO0003189	"Groundwater gauging and sampling were performed during November 2010. The wells were gauged on 10 November 2010, and sampled between 11 November and 20 November 2010. Surface water sampling was performed at five locations TC-1 through TC-5 in Turtle Creek on 15 November 2010."	39	52708	143.5	\$ 95.00
2011	Q2	April 2011	Groundwater Monitoring Report dated 11/10/2011	AR_HUNTO0003504	Unknown. May have the incorrectable attached with the cover page. Attached table is a duplicate of Q2 2010 table, include dates.	38	56161	140.5	\$ 95.00
2011	Q3	7/19/2011-8/5/2011	Groundwater Monitoring Report dated 11/28/2011	AR_HUNTO0004113	"Groundwater gauging and sampling were performed during July 2011. The wells were gauged on 19 July 2011, and samples between 19 July and 5 August 2011. Surface water samples were collected at locations TC-1 through TC-5 in July 2011."	39	59006	232	\$ 95.00

Sampling Data										
Sampling Year	Sampling Period	Sampling Date/Date Range	Sampling Information Source	Sampling Information Source	Sampling Effort Description	Sampling Information Source Rates	Number of Groundwater Samples Collected ⁴	Invoice No. ²	Technician Hours Billed ⁵	Technician Rate
2011	Q4	10/22/2011-1/3/2012	Groundwater Monitoring Report dated 3/8/2012	AR_HUNTO0004873	Statistics of sampling event on Page 2 of report and Table 4.		37	60733	128	\$ 95.00
2012	Q1	2/3/2012-1/2/2012	Groundwater Monitoring Report dated 1/16/2012	AR_HUNTO0003299	Statistics of sampling event on Page 2 of report and Table 4.		44	63140	136	\$ 95.00
2012	Q2	6/21/2012-6/26/2012	Groundwater Monitoring Report dated 12/7/2012	AR_HUNTO0003816	Statistics of sampling event on Page 2 of report and Table 4.		23	66355	112.5	\$ 95.00
2013	Q1	1/19/2013-2/17/2013	First Quarter 2013 Groundwater Monitoring Report, dated June 7, 2013	AR_HUNTO0001069	Statistics of sampling event on Page 2 of report and Table 4.		47	71090 and 72483	229	\$ 95.00
2013	Q3	8/16/2013-8/28/2013	Third Quarter 2013 Groundwater Monitoring Report, dated April 16,	AR_HUNTO0001969	Statistics of sampling event on Page 2 of report.		29	76023	116.5	\$ 95.00
2014	Q1	1/30/2014-2/19/2014	First Quarter 2014 Groundwater Monitoring Report, dated April 24,	AR_HUNTO0003530	Statistics of sampling event on Page 2 of report.		53	79910 and 80635	177	\$ 95.00
2014	S2	10/19/2014-10/31/2014	Second Half 2014 Groundwater Monitoring Report, dated April 20,	AR_HUNTO0005471	Statistics of sampling event on Page 2 of report.		30	87949 and 88666	166	\$ 95.00
2015	S1	3/18/2015-4/1/2015	First Half 2015 Groundwater Monitoring Report, dated June 18, 2015	AR_HUNTO0005620	Statistics of sampling event on Page 2 of report.		39	91695	98.5	\$ 95.00
2015	S2	10/4/2015-10/23/2015	Second Half 2015 Groundwater Monitoring Report, dated March 11,	AR_HUNTO0010664	Statistics of sampling event on Page 2 of report.		37	97429	178	\$ 95.00
2016	S1	5/15/2016-5/21/2016	First Half 2016 Groundwater Monitoring Report, dated December 30,	AR_HUNTO0018631	Statistics of sampling event on Page 2 of report.		13	102620	80.5	\$ 95.00
2016	S2	12/19/2016-12/15/2016	Second Half 2016 Groundwater Monitoring Report, dated April 18,	AR_HUNTO0018230	Statistics of sampling event on Page 2 of report.		9	108258	102.5	\$ 95.00
2017	S1	5/7/2017-5/11/2017 and 5/20/2017-6/2/2017	Well Installation and First Semiannual 2017 Groundwater Monitoring report, dated December 19, 2017	AR_HUNTO005471	Table 5 provides analytical data that shows 16 groundwater samples and 2 surface water samples were collected.		16	114354	75.25	\$ 95.00
2017	S2	11/6/2017 and 11/6/2017-11/16/2017	Second Semiannual 2017 Groundwater Monitoring Report, dated April 11, 2018	AR_HUNTO0024813	Statistics of sampling event on Page 2 of report.		16	119289	98.75	\$ 95.00
2018	S1	5/6/2018 and 5/8/2018-5/12/2018	First Semiannual 2018 Groundwater Monitoring Report, dated September 23, 2018	AR_HUNTO0025526	Statistics of sampling event on Page 2 of report.		16	122334	109.5	\$ 95.00
2018	S2	11/7/2018-11/8/2018 and 11/10/2018-11/17/2018	Second Semiannual 2018 Groundwater Monitoring Report, dated January 23, 2019	AR_HUNTO0023864	Statistics of sampling event on Page 2 of report.		15	127305	135	\$ 95.00
2019			Unknown, Groundwater monitoring report not available for review.				129466	133.5	\$ 95.00	
2019			Unknown, Groundwater monitoring report not available for review.				129755	100	\$ 95.00	
Subtotal (7/1/2006 to Present):										
Subtotal (events for which number of samples and billing information is available):										
Total:										
859										
862										
3910.5										

Notes:

1. Does not include analytical samples.
2. When the sampling event spans multiple billing period technician hours are the sum of the hours from both billing periods.
3. Assumes technician is the staff person performing work based on later invoices (after approximately 2005) which show travel and labor costs for a technician that coincides with groundwater sampling event.
4. Assumes technician is the staff person performing work based on later invoices (after approximately 2005) which show travel and labor costs for a technician that coincides with groundwater sampling event.
5. Exhibit C captures total technician time billed for the task. This summary assumes only the technician with substantial hours billed performed the sampling. Technician hours billed in Exhibit D may not match technician hours billed in Exhibit C.